4. RELEVANT EXCERPTS FROM WATER QUALITY STANDARDS AND BIOCRITERIA LANGUAGE

This section of the report contains excerpts from the approved water quality standards of states, tribes, territories, and interstate commissions. These excerpts may contain any or all of the following: designated uses as related to aquatic life uses, narrative and/or numeric biocriteria, and any other specific sections that are relevant to the entity's protection and propagation of aquatic life. It is important to note that this chapter is not intended to be a compendium of the entire water quality standard for each state, tribe and territory, but rather to highlight specific language within the standard that describes the use of biology and biological assessments to develop relevant criteria that assess water quality and protect aquatic life.

STATES

Alabama

SOURCE: Alabama Department of Environmental Management, Water Division - Water Quality Program, Chapter 335, Division 6, Volume 1, Chapter 10, Water Quality Criteria: September 7, 2000. http://www.adem.state.al.us/Regulations/Regulations/regulations.htm

335-6-10-.03 Water Use Classifications.

1. Outstanding Alabama Water
3. Swimming and Other Whole Body Water-Contact Sports
5. Fish and Wildlife
6. Limited Warmwater Fishery
7. Agricultural and Industrial Water Supply

335-6-10-.04 Antidegradation Policy.

(1) The purpose and intent of the water quality standards is to conserve the waters of the State of Alabama and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; and to provide for the prevention, abatement and control of new or existing water pollution.

(4) Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(5) Developments constituting a new or increased source of thermal pollution shall assure that such release will not impair the propagation of a balanced indigenous population of fish and aquatic life.

335-6-10-.06 Minimum Conditions Applicable to All State Waters. The following minimum conditions are applicable to all State waters, at all places and at all times, regardless of their uses:

(c) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes in concentrations or combinations which are toxic or harmful to human, animal or aquatic life to the extent commensurate with the designated usage of such waters.

335-6-10-.09 Specific Water Quality Criteria.

(1) OUTSTANDING ALABAMA WATER

(a) Best usage of waters: activities consistent with the natural characteristics of the waters.

(b) Conditions related to best usage:

1. High quality waters that constitute an outstanding Alabama resource, such as waters of state parks and wildlife refuges and waters of exceptional recreational or ecological

significance, may be considered for classification as an Outstanding Alabama Water (OAW).

(3) SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS
(b) Conditions related to best usage: ... The quality of waters will also be suitable for the propagation of fish, wildlife and aquatic life. The quality of salt waters and estuarine waters to which this classification is assigned will be suitable for the propagation and harvesting of shrimp and crabs.

(5) FISH AND WILDLIFE
(a) Best usage of waters: fishing, propagation of fish, aquatic life, and wildlife...
(b) Conditions related to best usage: the waters will be suitable for fish, aquatic life and wildlife propagation. The quality of salt and estuarine waters to which this classification is assigned will also be suitable for the propagation of shrimp and crabs.
(e) Specific criteria:

3. Temperature:

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been designated by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. §1251 et seq. or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama, 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances attributable to sewage, industrial wastes, or other wastes: only such

amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine or salt waters or the propagation thereof.

6. Taste, odor, and color-producing substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine and salt waters or adversely affect the propagation thereof; impair the palatability or marketability of fish and wildlife or shrimp and crabs in estuarine and salt waters; or unreasonably affect the aesthetic value of waters for any use under this classification.

(6) LIMITED WARMWATER FISHERY
(a) The (a) The provisions of the Fish and Wildlife water use classification at Rule 335-6-10-.09(5) shall apply to the Limited Warmwater Fishery water use classification, except as noted below. Unless alternative criteria for a given parameter are provided in paragraph (e) below, the applicable Fish and Wildlife criteria at paragraph 10-.09(5)(e) shall apply year-round. At the time the Department proposes to assign the Limited Warmwater Fishery classification to a specific waterbody, the Department may apply criteria from other classifications within this chapter if necessary to protect a documented, legitimate existing use.

(7) AGRICULTURAL AND INDUSTRIAL WATER SUPPLY
(b) Conditions related to best usage:
(i) The waters, except for natural impurities which may be present therein, will be suitable for ... fish survival...

335-6-10-.10 Special Designations.
(1) OUTSTANDING NATIONAL RESOURCE WATER
(a) Designation:
1. High quality waters that constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, may be considered for designation as an Outstanding National Resource Water (ONRW). For waters designated as ONRW, existing water quality shall be maintained and protected.

Alaska

SOURCE: Alaska Administrative Code: Chapter 70, Title 18, amended as of May 27, 1999: http://www.state.ak.us/local/akpages/ENV.CONSERV/title18/70wqs.pdf

18 AAC 70.020. PROTECTED WATER USE CLASSES AND SUBCLASSES; WATER QUALITY CRITERIA; WATER QUALITY STANDARDS TABLE.
(a) Classes and subclasses of use of the state's water protected by criteria set out under (b) of this section are:
(1) fresh water
(A) aquaculture
(C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
(2) marine water
(C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
(D) harvesting for consumption of raw mollusks or other raw aquatic life.

Arizona

SOURCE: Arizona Administrative Code, Title 18, Environmental Quality, Chapter 11. Department of Environmental Quality, Article 1. Water Quality Standards for Surface Waters, amended effective March 8, 2002: http://www.sosaz.com/public_services/Title_18/18-11.htm

R18-11-101. Definitions

The terms of this Article shall have the following meanings:

7. "Aquatic and wildlife (cold water)" means the use of a surface water by animals, plants, or other cold-water organisms, generally occurring at elevations greater than 5000 feet, for habitation, growth, or propagation.

8. "Aquatic and wildlife (effluent dependent water)" means the use of an effluent dependent water by animals, plants, or other organisms for habitation, growth, or propagation.

9. "Aquatic and wildlife (ephemeral)" means the use of an ephemeral water by animals, plants, or other organisms, excluding fish, for habitation, growth, or propagation.

10. "Aquatic and wildlife (warm water)" means the use of a surface water by animals, plants, or other warm-water organisms, generally occurring at elevations less than 5000 feet, for habitation, growth, or propagation.

22. "Ephemeral water" means a surface water that has a channel that is at all times above the water table and that flows only in direct response to precipitation.

26. "Fish consumption" means the use of a surface water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, turtles, crayfish, and frogs.

44. "Unique water" means a surface water which has been classified as an outstanding state resource water by the Director under R18-11-112.

R18-11-108. Narrative Water Quality Standards

A. A surface water shall be free from pollutants in amounts or combinations that:
   1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life or that impair recreational uses;
   5. Are toxic to humans, animals, plants, or other organisms;
   6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;

R18-11-112. Unique Waters

D. The Director may classify a surface water as a unique water upon finding that the surface water is an outstanding state resource water based upon the following criteria:
   a. The surface water is a perennial water;
   b. The surface water is in a free-flowing condition. For purposes of this subsection, "in a free-flowing condition" means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for unique water classification;
   c. The surface water has good water quality. For purposes of this subsection, "good water quality" means that the surface water has water quality that meets or exceeds applicable surface water quality standards. A surface water that is listed as impaired under § 303(d) of the Clean Water Act [33 U.S.C. § 1313] is ineligible for unique waters classification; and
   d. The surface water meets one or both of the following conditions:
   e. The surface water is of exceptional recreational or ecological significance because of its unique attributes, including but not limited to, attributes related to the geology, flora, fauna, water quality, aesthetic values, or the wilderness characteristics of the surface water.

f. Threatened or endangered species are known to be associated with the surface water and the existing water quality is essential to the maintenance and propagation of a threatened or endangered species or the surface water provides critical habitat for a threatened or endangered species. Endangered or threatened species are identified in "Endangered and Threatened Wildlife and Plants," 50 CFR § 17.11 and § 17.12 (revised as of October 1, 2000) which is incorporated by reference and on file with the Department and the Office of the Secretary of State. This incorporation by reference contains no future editions or amendments.

Arkansas

SOURCE: Arkansas Pollution Control and Ecology Commission Regulation 2**,** Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas, October 28, 2002, Chapter 3 Water Body Uses, http://www.adeq.state.ar.us/regs/files/reg02_final_021028.pdf

Section 2.302 Designated Uses
The designated uses are defined as follows:

A. Extraordinary Resource Waters - This beneficial use is a combination of the chemical, physical and biological characteristics of a waterbody and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values.

B. Ecologically Sensitive Waterbody - This beneficial use identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms.

C. Natural and Scenic Waterways - This beneficial use identifies segments which have been legislatively adopted into a state or federal system.

F. Fisheries - This beneficial use provides for the protection and propagation of fish, shellfish and other forms of aquatic life. It is further subdivided into the following subcategories:

(1) Trout - water which is suitable for the growth and survival of trout (Family: Salmonidae).

(2) Lakes and Reservoirs - water which is suitable for the protection and propagation of fish and other forms of aquatic life adapted to impounded waters. Generally characterized by a dominance of sunfishes such as bluegill or similar species, black basses and crappie. May include substantial populations of catfishes such as channel, blue and flathead catfish and commercial fishes including carp, buffalo and suckers. Forage fishes are normally shad or various species of minnows. Unique populations of walleye, striped bass and/or trout may also exist.

(3) Streams - water which is suitable for the protection and propagation of fish and other forms of aquatic life adapted to flowing water systems whether or not the flow is perennial.

(a) Ozark Highlands Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a preponderance of sensitive species and normally dominated by a diverse minnow community followed by sunfishes and darters. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Duskystripe shiner	Banded sculpin
Northern hogsucker	Ozark madtom
Slender madtom	Southern redbelly dace
"Rock" basses	Whitetail shiner
Rainbow and/or Orangethroat darters	Ozark minnow
Smallmouth bass	

(b) Boston Mountains Ecoregion - Streams supporting diverse communities of indigenous

or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a major proportion of sensitive species; a diverse, often darter-dominated community exists but with nearly equal proportions of minnows and sunfishes. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bigeye shiner	Shadow bass
Black redhorse	Wedgespot shiner
Slender madtom	Longnose darter
Longear sunfish	Fantail darter
Greenside darter	
Smallmouth bass	

(c) Arkansas River Valley Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a substantial proportion of sensitive species; a sunfish- and minnow-dominated community exists but with substantial proportions of darters and catfishes (particularly madtoms). The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bluntnose minnow	Orangespotted sunfish
Golden redhorse	Blacksidedarter
Yellow bullhead	Madtoms
Longear sunfish	
Redfin darter	
Spotted bass	

(d) Ouachita Mountains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. The fish community is characterized by a major proportion of sensitive species; a minnow-sunfish-dominated community exists, followed by darters. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bigeye shiner	Shadow bass
Northern hogsucker	Gravel chub
Freckled madtom	Northern studfish
Longear sunfish	Striped shiner
Orangebelly darter	
Smallmouth bass	

(e) Typical Gulf Coastal Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a limited proportion of sensitive species; sunfishes are distinctly dominant followed by darters and minnows. The community may be generally characterized by the following

fishes:

Key Species	Indicator Species
Redfin shiner	Pirate perch
Spotted sucker	Warmouth
Yellow bullhead	Spotted sunfish
Flier	Dusky darter
Slough darter	Creek chubsucker
Grass pickerel	Banded pygmy sunfish

(f) Springwater-influenced Gulf Coastal Ecoregion -Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a substantial proportion of sensitive species; sunfishes normally dominate the community and are followed by darters and minnows. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Redfin shiner	Pirate perch
Blacktail redhorse	Golden redhorse
Freckled madtom	Spotted bass
Longear sunfish	Scaly sand darter
Creole darter	Striped shiner
Grass pickerel	Banded pygmy sunfish

(g) Least-altered Delta Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by an insignificant proportion of sensitive species; sunfishes are distinctly dominant followed by minnows. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Ribbon shiner	Pugnose minnow
Smallmouth buffalo	Mosquitofish
Yellow bullhead	Pirate perch
Bluegill	Tadpole madtom
Bluntnose darter	Banded pygmy sunfish
Largemouth bass	

(h) Channel-altered Delta Ecoregion- Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by an absence of sensitive species; sunfishes and minnows dominate the population followed by catfishes. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Blacktail shiner	Mosquitofish

Key Species	Indicator Species
Drum	Gizzard shad
Carp	Emerald shiner
Channel catfish	
Green sunfish	
Spotted gar	

California*

*This language has not been reviewed for accuracy by state/tribal agency.

SOURCE: California Ocean Plan, Water Quality Control Plan for Ocean Waters of California, State Water Resources Control Resolution No. 90-27, Approval of the Amendment to the Water Quality Control Plan For Ocean Waters of California, effective March 22, 1990.
http://www.epa.gov/ost/standards/wqslibrary

Chapter II WATER QUALITY OBJECTIVES

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

Chapter III GENERAL REQUIREMENTS FOR MANAGEMENT OF WASTE* DISCHARGE TO THE OCEAN*

A. Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

B. Waste discharged to the ocean must be essentially free of:

2. Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.
3. Substances which will accumulate to toxic levels in marine waters, sediments or biota.
4. Substances that significantly decrease the natural light to benthic communities and other marine life.

D. Location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:

2. Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.

Chapter V DISCHARGE PROHIBITIONS

B. Areas of Special Biological Significance--Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance or natural water quality conditions in these areas.

Region I (North Coast)

Source: Water Quality Control Plan for the North Coast Region, North Coast Regional Water Quality Control Board, Section 6 - Surveillance and Monitoring, Section 6-1.00, amended May 23, 1996. http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_north_coast.pdf

STATEWIDE MONITORING PROGRAMS

State Mussel Watch Program

The California State Mussel Watch (SMW) Program is a long-term monitoring program administered by the State Water Board. Actual sampling and analysis are performed by the Department of Fish and Game. SMW provides the State Water Board and the six coastal regional water boards with an indication of geographical and temporal (year-to-year) trends in toxic pollutants along the California coast. Mussels (the common bay mussel, Myilus edulis, and the California mussel, M. californianus) have been shown to be

efficient bioaccumulators of many toxic substances in their water environment. Further, the sedentary nature of mussels, whether native or transplanted, permits a time integrated sampling of toxic pollutants at one location. The merits of employing mussels as water quality indicators are well established in the scientific literature, previous SMW reports, and other scientific publications. The North Coast Region will continue to participate in existing SMW monitoring and the development of freshwater applications. The North Coast Region has been involved in developing freshwater applications of SMW methodology, using freshwater clams, Corbicula sp. The North Coast Region has required that some discharges be monitored using these techniques. There are current plans to expand the use of these organisms as indicators in sensitive areas. In the North Coast Region sampling under the SMW program has led to the detection and mitigation of controllable releases of toxic substances. Sampling priorities are directed toward areas of immediate concern.

Region II (San Francisco Bay Basin)
Source: Chapter 2, Beneficial Uses, Water Quality Control Plan, Region 2, California Regional Water Quality Control Board, San Francisco Bay Region, June 21, 1995:
http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_san_francisco.pdf

Definitions of Beneficial Uses
(ASBS) Areas of Special Biological Significance
Areas designated by the State Water Resources Control Board.
These include marine life refuges, ecological reserves, and designated areas where the preservation and enhancement of natural resources requires special protection, in these areas, alteration of natural water quality is undesirable. The areas that have been designated as ASBS in this region are depicted in Figure 2-1. The State Ocean Plan (see Chapter 5) requires wastes to be discharged at a suffitionfor cient distance from these areas to assure maintenance of natural water quality conditions

(COLD) COLD FRESHWATER HABITAT
Uses of water that support cold water ecosysterns,including, but not limited to preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold freshwater habitats generally support trout and may support the anadromous salmon and steelhead fisheries as well. Cold water habitats are commonly well-oxygenated. Life within these waters is relatively intolerant to environmental stresses. Often, soft waters feed cold water habitat These waters render fish more susceptible to toxic metals, such as copper, because of their lower buffering capacity.

(EST) ESTUARINE HABITAT
Uses of water that support estuarine ecosysterns, including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds), and the propagation, sustenance, and migration of estuarine organisms.

Estuarine habitat provides an essential and unique habitat that serves to acclimate anadromous fishes (salmon, striped bass) migrating into fresh or marine water conditions. The protection of estuarine habitat is contingent upon (1) the maintenance of adequate Delta outflow to provide mixing and salinity control; and (2) provisions to protect wildlife habitat associated with marshlands and essential to the Bay periphery (i.e., prevention of fill activities). Estuarine habitat is generally associated with moderate seasonal fluctuations in dissolved oxygen, pH, and temperature and with a wide range in turbidity.

(MAR) MARINE HABITAT
Uses of water that support marine ecosysterns, including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

In many cases, the protection of marine habitat will be accomplished by measures that protect wildlife habitat generally, but more stringent criteria may be necessary for waterfowl marshes and other habitat, such as those for shellfish and marine fishes. Some marine habitats, such as important intertidal zones and kelp beds, may require special protection.

(MIGR) FISH MIGRATION

Uses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.

The water quality provisions acceptable to cold water fish generally protect anadromous fish as well. However, particular attention must be paid to maintaining zones of passage. Any barrier to migration or free movement of migratory fish is harmful. Natural tidal movement in estuaries and unimpeded river flows are necessary to sustain migratory fish and their offspring. A water quality barrier, whether thermal, physical, or chemical, can destroy the integrity of the migration mute and lead to the rapid decline of dependent fisheries. Water quality may vary through a zone of passage as a result of natural or human-induced activities. Fresh water entering estuaries may float on the surface of the denser salt water or hug one shore as a result of density differences related to water temperature, salinity, or suspended matter.

(RARE) PRESERVATION OF RARE AND ENDANGERED SPECIES
Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.

The water quality criteria to be achieved that would encourage development and protection of rare and endangered species should be the same as those for protection of fish and wildlife habitats generally. However, where rare or endangered species exist, special control requirements may be necessary to assure attainment and maintenance of particular quality criteria, which may vary slightly with the environmental needs of each particular species. Criteria for species using areas of special biological significance should likewise be derived from the general criteria for the habitat types involved, with special management diligence given where required.

(SPWN) FISH SPAWNING
Uses of water that support high quality aquatic habitats suitable for reproduction and early deteiopment of fish.

Dissolved oxygen levels in spawning areas should ideally approach saturation levels. Free movement of water is essential to maintain well-oxygenated conditions around eggs deposited in sediments. Water temperature, size distribution and organic content of sediments, water depth, and current velocity are also important determinants of spawning area adequacy.

(WARM) WARM FRESHWATER HABITAT
Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

The warm freshwater habitats supporting bass, bluegill, perch, and other panfish are generally lakes and reservoirs, although some minor streams will serve this purpose where stream flow is sufficient to sustain the fishery. The habitat is also important to a variety of nonfish species, such as flogs, crayfish, and insects, which provide food for fish and small mammals. This habitat is less sensitive to environmental changes, but more diverse than the cold freshwater habitat and natural fluctuations in temperature, dissolved oxygen, pH, and turbidity are usually greater.

WII.D) WILDLIFE HABITAT
Uses of waters that support wildllife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

The two most important types of wildlife habitat are riparian and wetland habitats. These habitats can be threatened by development, erosion, and sedimentation, as well as by poor water quality. The water quality requirements of wildlife pertain to the water directly ingested, the aquatic habitat itself, and the effect of water quality on the production of food materials. Waterfowl habitat is particularly sensitive to changes in water quality. Dissolved oxygen, pH, alkalinity, salinity, turbidity, settleable matter, oil, toxicants, and specific disease organisms are water quality characteristics particularly important to waterfowl habitat. Dissolved oxygen is needed in waterfowl habitats to suppress development of botulism organisms; botulism has killed millions of waterfowl. It is particularly important to mainrain adequate circulation and aerobic conditions in shallow fringe areas of ponds or reservoirs where botulism has caused problems.

Region III (Central Coast)
Source: Water Quality Control Plan -Regional Water Quality Control Board 3 (Central Coast), California Regional Water Quality Control Board, Chapter 6: Surveillance And Monitoring, pg. VI-2, September 8, 1991: http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_wqcp.pdf

III.A.1. TOXIC SUBSTANCE MONITORING
The Toxic Substances Monitoring (TSM) portion of the Primary Network has been integrated with other Primary Network Monitoring. Streams and lakes were ranked according to various criteria established to indicate their importance to the State in terms of water quality. From this process, the water bodies ranked Priority 1, or highest priority, were included in the Primary Network; routine chemical and biological water monitoring is performed by DWR and/or the USGS; and toxic substances monitoring of resident organisms is performed by the Department of Fish and Game. The objectives of the Primary Network TSM program are:

1. To develop statewide baseline data and to demonstrate trends in the occurrence of toxic elements and organic substances in the aquatic biota,

Region IV (Los Angeles)
Source: Water Quality Control Plan Los Angeles - Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, Chapter 6: Surveillance And Monitoring**,** approved February 23, 1995: http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_los_angeles.pdf

Biological Criteria
Biological criteria are narrative (and sometimes numeric) expressions that describe the biological integrity of aquatic communities (EPA, 1991). Biological criteria supplement other water quality objectives (physical, chemical, toxicity) by providing a direct measure of aquatic communities at risk from human activities. These criteria can also provide evidence of streams with exceptional water quality. Baseline data must be collected from both reference and impacted streams in the Region. Regular monitoring of these areas can then provide a continual assessment of instream impacts. Over 30 of the 50 states have developed, or are developing, biological criteria programs. Although there is not a current biological criteria program in the Region, Regional Board staff are planning to begin conducting baseline surveys in the coming years. Although **there is not a current** biological criteria program in the Region, Regional Board staff are planning to begin conducting baseline surveys in the coming years.

Colorado

SOURCE: Colorado Department of Public Health and Environment, Department Regulations, Water Quality Control Commission, Surface Water Quality Classifications & Standards, Regulation 31- Basic Standards & Methodologies for Surface Water, amended effective October 30, 2001:
http://www.cdphe.state.co.us/op/regs/100231.pdf and http://www.cdphe.state.co.us/wq/wqhom.html

31.5 DEFINITIONS

(8) "COLD WATER BIOTA" means aquatic life, including trout, normally found in waters where the summer temperature does not often exceed 20° C.

(32)"WARM WATER BIOTA" means aquatic life normally found in waters where the summer temperature frequently exceeds 20° C.

31.11 BASIC STANDARDS APPLICABLE TO SURFACE WATERS OF THE STATE
All surface waters of the state are subject to the following basic standards; however, discharge of substances regulated by permits which are within those permit limitations shall not be a basis for enforcement proceedings under these basic standards:

(1) Except where authorized by permits, BMP's, 401 certifications, or plans of operation approved by the Division or other applicable agencies, state surface waters shall be free from substances attributable to human-caused point source or nonpoint source discharge in amounts, concentrations or combinations

which:

(a) for all surface waters of the state except wetlands;
  (v) are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; or
  (vi) produce a predominance of undesirable aquatic life;

(b) for surface waters in wetlands;
  (ii) are toxic to humans, animals, plants, or aquatic life of the wetland.

31.13 STATE USE CLASSIFICATIONS

(c) Aquatic Life
These surface waters presently support aquatic life uses as described below, or such uses may reasonably be expected in the future due to the suitability of present conditions, or the waters are intended to become suitable for such uses as a goal:
  (i) Class I - Cold Water Aquatic Life
  These are waters that (1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species.
  (ii) Class 1 - Warm Water Aquatic Life
  These are waters that (1) currently are capable of sustaining a wide variety of warm water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species.
  (iii) Class 2- Cold and Warm Water Aquatic Life
  These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

(e) Wetlands
  (v) The Commission may adopt a "wetlands" classification based on the functions of the wetlands in question. Wetland functions that may warrant site-specific protection include ground water recharge or discharge, flood flow alteration, sediment stabilization, sediment or other pollutant retention, nutrient removal or transformation, biological diversity or uniqueness, wildlife diversity or abundance, aquatic life diversity or abundance, and recreation.

Connecticut

SOURCE: Connecticut Water Quality Standards Sections II and III, effective April 9, 1997: http://dep.state.ct.us/wtr/wqsinfo.htm and http://dep.state.ct.us/wtr/wqs.pdf

NARRATIVE BIOCRITERIA

Surface waters and sediments shall be free from chemical constituents in concentrations or combinations which will or can reasonably be expected to result in acute or chronic toxicity to aquatic organisms or impair the biological integrity of aquatic or marine ecosystems outside of any allocated zone of influence or which will or can reasonably be expected to bioconcentrate or bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels which will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic life. In determining consistency with this Standard, the Commissioner shall at a minimum consider the specific number criteria listed in Appendix D and any other information she or he deems relevant.

Benthic invertebrate criteria may be utilized where appropriate for assessment of biological integrity of surface waters. The criteria apply to the fauna of erosional or riffle habitats in flowing waters which are not subject to tidal influences.

III. SURFACE WATER CLASSIFICATIONS

INLAND SURFACE WATERS

CLASS AA

Designated Use - Existing or proposed drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other purposes, (recreational uses may be restricted).

CRITERIA

Parameter	Standard
13. Benthic Invertebrates which inhabit lotic waters	A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles) and Trichoptera (caddisflies) should be well represented.

INLAND SURFACE WATERS

CLASS A

Designated Uses - Potential drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other legitimate uses, including navigation.

CRITERIA

Parameter	Standard
13. Benthic Invertebrates which inhabit lotic waters	A wide variety of macroinvertebrate taxa should normally be present and all functional feeding groups should normally be well represented. Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts. Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles) and Trichoptera (caddisflies) should be well represented.

INLAND SURFACE WATERS

CLASS B

Designated Use - Recreational use; fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation.

CRITERIA

Parameter	Standard
13. Benthic Invertebrates which inhabit lotic waters	Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. All functional feeding groups and a wide variety of macroinvertebrate taxa shall be present, however one or more may be disproportionate in abundance. Waters which currently support a high quality aquatic community shall be maintained at that high quality. Presence and productivity of taxa within the Orders Plecoptera (stoneflies), Ephemeroptera (mayflies); and pollution intolerant Coleoptera (beetles) and Trichoptera (caddis-flies) may be limited due to cultural activities. Macroinvertebrate communities in waters impaired by cultural activities shall be restored to the extent practical through implementation of the department's procedures for control of pollutant discharges to surface waters and through Best Management Practices for non-point sources of pollution.

INLAND SURFACE WATERS
CLASS C

Present water quality conditions preclude the full attainment of one or more designated uses for Class B waters some or all of the time. One or more Water Quality Criteria for Class B waters are not being consistently achieved. Class C waters may be suitable for certain fish and wildlife habitat, certain recreational activities, industrial use and other legitimate uses, including navigation.

INLAND SURFACE WATERS
CLASS D

Present water quality conditions persistently preclude the attainment of one or more designated uses for Class B waters. One or more Water Quality Criteria for Class B waters are not being achieved most or all of the time. Class D waters may be suitable for bathing or other recreational purposes, certain fish and wildlife habitat, industrial or other legitimate uses, including navigation.

Delaware

SOURCE: State of Delaware Surface Water Quality Standards as amended, August 11, 1999, Department of Natural Resources and Environmental Control: http://www.dnrec.state.de.us/water/wqs1999.pdf

Section 1: Intent

1.1. It is the policy of the Department to maintain within its jurisdiction surface waters of the State of satisfactory quality consistent with public health and public recreation purposes, the propagation and protection of fish and aquatic life, and other beneficial uses of the water.

Section 2: Definitions

Cold water fish use: Protection of fish species (such as from the family Salmonidae) and other flora and fauna indigenous to a cold water habitat.

Fish, aquatic life and wildlife: All animal and plant life found in Delaware, either indigenous or migratory, regardless of life stage or economic importance.

Section 3: Antidegradation Policy

3.1. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Degradation of water quality in such a manner that results in reduced number, quality, or river or stream mileage of existing uses shall be prohibited. Degradation shall be defined for the purposes of this section as a statistically significant reduction, accounting for natural variations, in biological, chemical, or habitat quality as measured or predicted using appropriate assessment protocols.

3.2. Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected. In the case of waters of exceptional recreational or ecological significance, existing quality shall be maintained or enhanced...

3.3. Where high quality waters constitute an outstanding National resource, such as waters of National parks and wildlife refuges, existing quality shall be maintained and protected.

Section 4: General Stream Criteria

4.1. All surface waters of the State (except as detailed in Sections 8 and 12) shall meet the following minimum criteria:

(a) Waters shall be free from substances that are attributable to wastes of industrial, municipal, agricultural or other human-induced origin. Examples include but are not limited to the following:

(iii) Any pollutants, including those of a thermal, toxic, corrosive, bacteriological, radiological, or other nature, that may interfere with attainment and maintenance of designated uses of the water, may impart undesirable odors, tastes, or colors to the water or to aquatic life found therein, may endanger public health, or may result in dominance of nuisance species.

District of Columbia*

*This language has not been reviewed for accuracy by state/tribal agency.

SOURCE: Chapter 11, Water Quality Standards of Title 21 of the District of Columbia Municipal Regulations (Notice of Final Rulemaking, January 21, 2000): http://dchealth.dc.gov/services/administration_offices/environmental/services2/water_division/pdf/WaterQualityStandards.shtm

1101.1 For the purposes of water quality standards, the surface waters of the District shall be classified on the basis of their (i) current uses, and (ii) future uses to which the waters will be restored. The categories of beneficial uses for the surface waters of the District shall be as follows:

Categories of Uses Which Determine Water Quality Standards	Classes of Water
Protection & propagation of fish, shellfish and wildlife	...C...

1102.3 TIER III: Where High Quality Waters constitute an outstanding National resource, such as waters of the National and District parks and wildlife refuges and waters of exceptional recreational or ecological significance, those waters shall be designated Outstanding National Resource Waters (ONRW) and the water quality in the ONRW shall be maintained, protected and designated as below:

(a) New point and nonpoint source discharges, treated or otherwise, shall be prohibited in these segments;
(b) Increases in loadings or new pollutants from existing point and nonpoint source discharges shall be prohibited in these segments;
(c) Short-term degradation of the water quality shall be allowed after opportunity for public participation and addressing their comments, if any. However, all practical means of minimizing such degradation shall be implemented; and
(d) Designation of ONRWs shall be adopted after full satisfaction of the intergovernmental coordination of the District's agencies and public participation.

1102.4 SPECIAL WATERS OF THE DISTRICT OF COLUMBIA (SWDC): Any segment or segments of the surface waters of the District which are of water quality better than needed for the current use or have scenic or aesthetic importance shall be designated as Special Waters of the District of Columbia (SWDC)...

1103 WETLANDS

1103.1 In a wetland, the numerical and the narrative criteria shall be applied to the column of water above the wetland in accordance with the designated use.

1103.2 Wetlands with rooted vascular aquatic vegetation, except those specifically constructed or created as waste water treatment devices and except as provided in D. C. Code subsection 6-923(d) and subsection 6-926(a)(3), shall be protected from significant adverse hydrologic modifications, excessive sedimentation, deposition of toxic substances in toxic amounts, nutrient imbalances, and other adverse anthropogenic impacts.

1104 STANDARDS

1104.1 The surface waters of the District shall be free from substances in amounts or combinations that do any of one the following:

(d) cause injury to, are toxic to, or produce adverse physiological or behavioral changes in humans, plants or animals
(e) Produce undesirable or nuisance aquatic life or result in the dominance of nuisance species; or
(f) Impair the biological community that naturally occurs in the waters or depends on the waters for its survival and propagation

1104.5 Class C streams shall be maintained to support aquatic life and shall not be placed in pipes.

Florida

SOURCE: Florida Administrative Code, Chapter 62-302 Surface Water Quality Standards, effective December 26, 1996: http://www.dep.state.fl.us/water/surfacewater/rules.htm and http://www8.myflorida.com/environment/learn/science/laboratories/index.html

62-302.200 Definitions.

(10)"Exceptional Ecological Significance" shall mean that a water body is a part of an ecosystem of unusual value. The exceptional significance may be in unusual species, productivity, diversity, ecological relationships, ambient water quality, scientific or educational interest, or in other aspects of the ecosystem's setting or processes.

(15)"Nuisance Species" shall mean species of flora or fauna whose noxious characteristics or presence in sufficient number, biomass, or areal extent may reasonably be expected to prevent, or unreasonably interfere with, a designated use of those waters.

(16)"Nursery Area of Indigenous Aquatic Life" shall mean any bed of the following aquatic plants, either in monoculture or mixed: Halodule wrightii, Halophila spp., Potamogeton spp. (pondweed), Ruppia maritima (widgeon-grass), Sagittaria spp. (arrowhead), Syringodium filiforme (manatee-grass), Thalassia testudinum (turtle grass), or Vallisneria spp. (eel-grass), or any area used by the early-life stages, larvae and post-larvae, of aquatic life during the period of rapid growth and development into the juvenile states.

(17)"Outstanding Florida Waters" shall mean waters designated by the Environmental Regulation Commission as worthy of special protection because of their natural attributes.

(18)"Outstanding National Resource Waters" shall mean waters designated by the Environmental Regulation Commission that are of such exceptional recreational or ecological significance that water quality should be maintained and protected under all circumstances, other than temporary lowering and the lowering allowed under Section 316 of the Federal Clean Water Act.

(22)"Propagation" shall mean reproduction sufficient to maintain the species' role in its respective ecological community.

(24)"Shannon-Weaver Diversity Index" shall mean: negative summation (from i=1 to s) of (n i /N) log 2 (n i /N) where s is the number of species in a sample, N is the total number of individuals in a sample, and n i is the total number of individuals in species i.

(25)"Special Waters" shall mean water bodies designated in accordance with Section 62-302.700, F.A.C., by the Environmental Regulation Commission for inclusion in the Special Waters Category of Outstanding Florida Waters, as contained in Section 62-302.700, F.A.C. A Special Water may include all or part of any water body.

62-302.400 Classification of Surface Waters, Usage, Reclassification, Classified Waters.

(1) All surface waters of the State have been classified according to designated uses as follows:
CLASS III Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife

(4) Water quality classifications are arranged in order of the degree of protection required, with Class I water having generally the most stringent water quality criteria and Class V the least. However, Class I, II, and III surface waters share water quality criteria established to protect recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife.

Excerpt from 62-302.530, Criteria for Surface Water Quality Classifications

Parameter	Units	Class I: Potable Water Supply	Class II: Shellfish Propagation or Harvesting	Class III: Recreation, Propagation and Maintenance of a Health, Well-balanced Population of Fish and Wildlife		Class IV: Agricultural Water Supplies	Class V: Navigation, Utility, and Industrial Use
				Predominantly Fresh Waters	Predominantly Marine Waters		
11) Biological Integrity	Percent reduction of Shannon-Weaver Diversity Index	The Index for benthic macro-invertebrates shall not be reduced less than 75% of background levels measured using organisms retained by a U. S. Standard No. 30 sieve and collected and composited from a minimum of three Hester-Dendy type artificial substrate samplers of 0.10 to 0.15 m2 area each, incubated for a period of four weeks.	The Index for benthic macro-invertebrates shall not be reduced to less than 75% of established background levels as measured using organisms retained by a U. S. Standard No. 30 sieve and collected and composited from a minimum of three natural substrate samples, taken with Ponar type samplers with minimum sampling area of 225 cm2.	The Index for benthic macro-invertebrates shall not be reduced to less than 75% of established background levels as measured using organisms retained by a U. S. Standard No. 30 sieve and collected and composited from a minimum of three Hester-Dendy type artificial substrate samplers of 0.10 to 0.15 m2 area each, incubated for a period of four weeks.	The Index for benthic macro-invertebrates shall not be reduced to less than 75% of established background levels as measured using organisms retained by a U. S. Standard No. 30 sieve and collected and composited from a minimum of three natural substrate samples, taken with Ponar type samplers with minimum sampling area of 225 cm2.		

62-302.800 Site Specific Alternative Criteria.

(2) The affirmative demonstration required by this section shall mean a documented showing that the proposed alternative criteria would exist due to natural background conditions or man-induced conditions which cannot be controlled or abated. Such demonstration shall be based upon relevant factors which include:

(c) A description of the historical and existing biology, including variations, which may be affected by the parameter of concern. Conditions in similar water bodies may be used for comparison.

Georgia

SOURCE: Rules of Georgia Department of Natural Resources, Environmental Protection Division, Chapter 391-3-6, Water Quality Control, revised October 2001:
http://www.dnr.state.ga.us/dnr/environ/rules_files/exist_files/391-3-6.pdf and
http://www.dnr.state.ga.us/dnr/environ

(2) Water Quality Enhancement:

(a) The purposes and intent of the State in establishing Water Quality Standards are to provide enhancement of water quality and prevention of pollution; to protect the public health or welfare in accordance with the public interest for drinking water supplies, conservation of fish, wildlife and other beneficial aquatic life, and agricultural, industrial, recreational, and other reasonable and necessary uses and to maintain and improve the biological integrity of the waters of the State.

391-3-6.03 Water Use Classifications and Water Quality Standards

(3) Definitions:

(b) "Biological integrity" is functionally defined as the condition of the aquatic community inhabiting least impaired waterbodies of a specified habitat measured by community structure and function.

(4) Water Use Classifications. Water use classifications for which the criteria of this Paragraph are applicable are as follows:
   (c) Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life
   (d) Wild River
   (e) Scenic River
   (f) Coastal Fishing

(6) Specific Criteria for Classified Water Usage. In addition to the general criteria, the following criteria are deemed necessary and shall be required for the specific water usage as shown:
   (a) Drinking Water Supplies: Those waters approved as a source for public drinking water systems permitted or to be permitted by the Environmental Protection Division. Waters classified for drinking water supplies will also support the fishing use and any other use requiring water of a lower quality.
   (c) Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or for any other use requiring water of a lower quality.
   (d) Wild River: For all waters designated in 391-3-6-.03(13) as "Wild River," there shall be no alteration of natural water quality from any source.
   (e) Scenic River: For all waters designated in 391-3-6-.03(13) as "Scenic River," there shall be no alteration of natural water quality from any source.
   (f) Coastal Fishing: This classification will be applicable to specific sites when so designated by the Environmental Protection Division. For waters designated as "Coastal Fishing", site specific criteria for dissolved oxygen will be assigned and detailed by footnote in Section 391-3-6.03(13), "Specific Water Use Classifications." All other criteria and uses for the fishing use classification will apply for coastal fishing.

(15)Trout Streams. Streams designated as Primary Trout Waters are waters supporting a self-sustaining population of Rainbow, Brown or Brook Trout. Streams designated as Secondary Trout Streams are those with no evidence of natural trout reproduction, but are capable of supporting trout throughout the year...

Hawai`i

SOURCE: Source: Hawai`i Administrative Rules Title 11, Department of Health Chapter 54, Water Quality Standards, April 17, 2000:
http://www.hawaii.gov/health/rules/11-54.pdf and
http://www.epa.gov/waterscience/standards/wqslibrary/hi/hawaii_9_wqs.pdf

§11-54-01 Definitions. As used in this chapter:
- "Amphidromous" means aquatic life that migrate to and from the sea, but not specifically for reproductive purposes. Amphidromous aquatic life in Hawai'ian streams are confined to fresh waters as adults, but their larval stages are partially or entirely spent in the ocean as part of the zooplankton.
- "Anchialine pools" means coastal bodies of standing waters that have no surface connections to the ocean but display both tidal fluctuations and salinity ranges characteristic of fresh and brackish waters, indicating the presence of subsurface connections to the watertable and ocean. Anchialine pools are located in porous substrata (recent lava or limestone) and often contain a distinctive assemblage of native aquatic life. Deeper anchialine pools may display salinity stratification, and some shallow pools may contain standing water only on the highest tides.
- "Aquatic life" means "any type or species of mammal, fish, amphibian, reptile, mollusk, crustacean, arthropod, invertebrate, coral, or other animal that inhabits the freshwater or marine environment and includes any part, product, egg, or offspring thereof; or freshwater or marine plants, including, seeds, roots, products, and other parts thereof".
- "Estuaries" means characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may be either natural or developed.
- "Introduced aquatic life" means those species of aquatic organisms that are not native to a given area or water body and whose populations were established (deliberately or accidentally) by human activity.

"Introduced" organisms are also referred to as "alien" or "exotic".

- "Low wetlands" means freshwater wetlands located below 100 m (330 ft) elevation that may be natural or artificial in origin and are usually found near coasts or in valley termini. Low wetlands are maintained by either stream, well, or ditch influent water, or by exposure of the natural water table. Low wetlands include, but are not limited to, natural lowland marshes, riparian wetlands, littoral zones of standing waters (including lakes, reservoirs, ponds and fishponds) and agricultural wetlands such as taro lo'i.
- "Native aquatic life" means those species or higher taxa of aquatic organisms that occur naturally in a given area or water body and whose populations were not established as a result of human activity.
- "Natural estuaries" means volumes of brackish coastal waters in well-defined basins of natural origin, found mainly at the mouths of streams or rivers. Natural estuaries can be either stream-fed (drowned stream mouths fed by perennial stream runoff) or spring-fed (nearshore basins with subterranean fresh water sources). Stream-fed estuaries serve as important migratory pathways for larval and juvenile amphidromous stream fauna.
- "Natural freshwater lakes" means standing water that is always fresh, in well-defined natural basins, with a surface area usually greater than 0.1 ha (0.25 acres), and in which rooted emergent hydrophytes, if present, occupy no more than 30% of the surface area. Natural freshwater lakes in Hawai‘i occur at high, intermediate, and low elevations. Lowland freshwater lakes characteristically lack a natural oceanic connection (surface or subsurface) of a magnitude sufficient to cause demonstrable tidal fluctuations.

§11-54-03 Classification of water uses.

(a) The following use categories classify inland and marine waters for purposes of applying the standards set forth in this chapter, and for the selection or definition of appropriate quality parameters and uses to be protected in these waters. Storm water discharge into State waters shall be allowed provided it meets the requirements specified in this section and the basic water quality criteria specified in section 11-54-04.

(b) Inland waters.

(1) Class 1. It is the objective of class 1 waters that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source. To the extent possible, the wilderness character of these areas shall be protected. Waste discharge into these waters is prohibited. Any conduct which results in a demonstrable increase in levels of point or nonpoint source contamination in class 1 waters is prohibited.

(a) Class 1.a. The uses to be protected in class 1.a waters are scientific and educational purposes, protection of native breeding stock, baseline references from which human-caused changes can be measured, compatible recreation, aesthetic enjoyment, and other nondegrading uses which are compatible with the protection of the ecosystems associated with waters of this class;

(b) Class 1.b. The uses to be protected in class 1.b waters are domestic water supplies, food processing, protection of native breeding stock, the support and propagation of aquatic life...

(2) Class 2. The objective of class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class...

(c) Marine waters.

(1) Class AA. It is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions. To the extent practicable, the wilderness character of these areas shall be protected. No zones of mixing shall be permitted in this class:

(a) Within a defined reef area, in waters of a depth less than 18 meters (ten fathoms); or

(b) In waters up to a distance of 300 meters (one thousand feet) off shore if there is no defined reef area and if the depth is greater than 18 meters (ten fathoms). The uses to be protected in this class of waters are oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment. The classification of any water area as Class AA shall not preclude other

uses of the waters compatible with these objectives and in conformance with the criteria applicable to them;

(2) Class A. It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class.

(d) Marine bottom ecosystems.
(1) Class I. It is the objective of class I marine bottom ecosystems that they remain as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human-induced source. Uses of marine bottom ecosystems in this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state, such as for nonconsumptive scientific research (demonstration, observation or monitoring only), nonconsumptive education, aesthetic enjoyment, passive activities, and preservation;
(2) Class II. It is the objective of class II marine bottom ecosystems that their use for protection including propagation of fish, shellfish, and wildlife, and for recreational purposes not be limited in any way. The uses to be protected in this class of marine bottom ecosystems are all uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation.

§11-54-05.2 Inland water criteria.
(b) Specific criteria for streams.
(2) Bottom criteria for streams:
(e) The director shall prescribe the appropriate parameters, measures, and criteria for monitoring stream bottom biological communities including their habitat, which may be affected by proposed actions. Permanent benchmark stations may be required where necessary for monitoring purposes. The water quality criteria for this subsection shall be deemed to be met if time series surveys of benchmark stations indicate no relative changes in the relevant biological communities, as noted by biological community indicators or by indicator organisms which may be applicable to the specific site.

Idaho

SOURCE: Source: Rules of the Department of Environmental Quality, IDAPA 58.01.02, Water Quality Standards and Wastewater Treatment Requirements, amended April 5, 2000:
http://www2.state.id.us/adm/adminrules/rules/idapa58/0102.pdf and
http://www2.state.id.us/adm/adminrules/rules/idapa58/58index.htm

3. Definitions

04. Beneficial Use. Any of the various uses which may be made of the water of Idaho, including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use is dependent upon actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not a beneficial use. (8-24-94)

05. Aquatic Species. Any plant or animal that lives at least part of its life in the water column or benthic portion of waters of the state. (8-24-94)

11. Biological Monitoring or Biomonitoring. The use of a biological entity as a detector and its response as a measure to determine environmental conditions. Toxicity tests and biological surveys, including habitat monitoring, are common biomonitoring methods.

23. Desirable Species. Species indigenous to the area or those introduced by the Idaho Department of Fish and Game.

71. Outstanding Resource Water (ORW). A high quality water, such as water of national and state parks and wildlife refuges and water of exceptional recreational or ecological significance, which has been designated by the legislature and subsequently listed in this chapter. ORW constitutes an outstanding national or state resource that requires protection from point and nonpoint source activities that may lower water quality. (3-20-97)

85. Reference Stream Or Condition. A water body which represents the minimum conditions necessary to fully support the applicable designated beneficial uses as further specified in these rules, or natural conditions with few impacts from human activities and which are representative of the highest level of support attainable in the basin. In highly mineralized areas or in the absence of such reference streams or water bodies, the Director, in consultation with the basin advisory group and the technical advisors to it, may define appropriate hypothetical reference conditions or may use monitoring data specific to the site in question to determine conditions in which the beneficial uses are fully supported.

87. Resident Species. Those species that commonly occur in a site including those that occur only seasonally or intermittently. This includes the species, genera, families, orders, classes, and phyla that: (8-24-94)

a. Are usually present at the site; (8-24-94)
b. Are present only seasonally due to migration; (8-24-94)
c. Are present intermittently because they periodically return or extend their ranges into the site; (8-24-94)
d. Were present at the site in the past but are not currently due to degraded conditions, and are expected to be present at the site when conditions improve; and (8-24-94)
e. Are present in nearby bodies of water but are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve. (8-24-94)

111. Unique Ecological Significance. The attribute of any stream or water body which is inhabited or supports an endangered or threatened species of plant or animal or a species of special concern identified by the Idaho Department of Fish and Game, which provides anadromous fish passage, or which provides spawning or rearing habitat for anadromous or desirable species of lake dwelling fishes.

53. BENEFICIAL USE SUPPORT STATUS.

In determining whether a water body fully supports designated and existing beneficial uses, the Department shall determine whether all of the applicable water quality standards are being achieved, including any criteria developed pursuant to these rules, and whether a healthy, balanced biological community is present. The Department shall utilize biological and aquatic habitat parameters listed below and in the current version of the "Water Body Assessment Guidance", as published by the Idaho Department of Environmental Quality, as a guide to assist in the assessment of beneficial use status. Revisions to this guidance will made after notice and an opportunity for public comment. These parameters are not to be considered or treated as individual water quality criteria or otherwise interpreted or applied as water quality standards. (4-5-00)

01. Aquatic Habitat Parameters. These parameters may include, but are not limited to, stream width, stream depth, stream shade, measurements of sediment impacts, bank stability, water flows, and other physical characteristics of the stream that affect habitat for fish, macroinvertebrates or other aquatic life; and (3-20-97)

02. Biological Parameters. These parameters may include, but are not limited to, evaluation of aquatic macroinvertebrates including Ephemeroptera, Plecoptera and Trichoptera (EPT), Hilsenhoff Biotic Index, measures of functional feeding groups, and the variety and number of fish or other aquatic life to determine biologicalcommunity diversity and functionality.

100. SURFACE WATER USE DESIGNATIONS.

01. Aquatic Life. (7-1-93)

a. Cold water (COLD): water quality appropriate for the protection and maintenance of a viable aquatic life community for cold water species. (4-5-00)
b. Salmonid spawning: waters which provide or could provide a habitat for active self-propagating populations of salmonid fishes. (7-1-93)
c. Seasonal cold water (SC): water quality appropriate for the protection and maintenance of a viable aquatic life community of cool and cold water species, where cold water aquatic life may be absent during, or tolerant of , seasonally warm temperatures. (4-5-00)
d. Warm water (WARM): water quality appropriate for the protection and maintenance of a viable aquatic life community for warm water species. (4-5-00)
e. Modified (MOD): water quality appropriate for an aquatic life community that is limited due to one (1) or more conditions set forth in 40 CFR 131.10(g) which preclude attainment of reference streams or conditions.

04. Wildlife Habitats. Water quality appropriate for wildlife habitats. This use applies to all surface waters of the state. (4-5-00)

Illinois

SOURCE: Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board, Part 302 and 303 Water Quality Standards, amended August 26, 1999:
http://www.ipcb.state.il.us/Title_35/Subtitles/C/302.pdf and
http://www.ipcb.state.il.us/Title_35/Subtitles/C/303.pdf

Section 302.102 Allowed Mixing, Mixing Zones and ZIDs

(b) The portion, volume and area of any receiving waters within which mixing is allowed pursuant to subsection (a) shall be limited by the following:
2) Mixing is not allowed in waters which include a tributary stream entrance if such mixing occludes the tributary mouth or otherwise restricts the movement of aquatic life into or out of the tributary.
3) Mixing is not allowed in waters containing mussel beds, endangered species habitat, fish spawning areas, areas of important aquatic life habitat, or any other natural features vital to the well being of aquatic life in such a manner that the maintenance of aquatic life in the body of water as a whole would be adversely affected.
6) Mixing must allow for a zone of passage for aquatic life in which water quality standards are met.

SUBPART E:
Section 302.501 Scope, Applicability, and Definitions

"Resident or indigenous species" means species that currently live a substantial portion of their life cycle, or reproduce, in a given body of water, or that are native species whose historical range includes a given body of water.

"Target species" is a species to be protected by the criterion.

"Target species value" is the criterion value for the target species.

"Trophic level" means a functional classification of taxa within a community that is based on feeding relationships. For example, aquatic green plants and herbivores comprise the first and second trophic levels in a food chain.

SUBPART B: Nonspecific Water Use Designations:
Section 303.204 Secondary Contact and Indigenous Aquatic Life Waters

Waters which are required to meet the secondary contact and indigenous aquatic life standards of Subpart D, Part 302, are not required to meet the general use standards or the public and food processing water supply standards of Subparts B and C, Part 302.

Indiana

SOURCE: Indiana Administrative Code, Title 327 Water Pollution Control Board, Article 2: Water Quality Standards, Updated April 1, 2002: http://www.ai.org/legislative/iac/title327.html

Indiana Water Quality Standards for the Non-Great Lakes Basin Portions of Indiana

327 IAC 2-1-3 Surface water use designations; multiple uses

Sec. 3. (a) The following water uses are designated by the water pollution control board:

(1) Surface waters of the state are designated for full-body contact recreation as provided in section 6(d) of this rule.

(2) All waters, except as described in subdivision (5), will be capable of supporting a well-balanced, warm water aquatic community and, where natural temperatures will permit, will be capable of supporting put-and-take trout fishing. All waters capable of supporting the natural reproduction of trout as of February 17, 1977, shall be so maintained.

(3) All waters which are used for public or industrial water supply must meet the standards for those uses at the points where the water is withdrawn. This use designation and its corresponding water quality standards are not to be construed as imposing a user restriction on those exercising or desiring to exercise the use.

(4) All waters which are used for agricultural purposes must, as a minimum, meet the standards established in section 6(a) of this rule.

(5) All waters in which naturally poor physical characteristics (including lack of sufficient flow), naturally poor chemical quality, or irreversible man-induced conditions, which came into existence prior to January 1, 1983, and having been established by use attainability analysis, public comment period, and hearing may qualify to be classified for limited use and must be evaluated for restoration and upgrading at teach triennial review of this rule. Specific waters of the state designated for limited use are listed in section 11(a) of this rule.

(6) All waters which provide unusual aquatic habitat, which are an integral feature of an area of exceptional natural beauty or character, or which support unique assemblages of aquatic organisms may be classified for exceptional use. Specific waters of the state designated for exceptional use are listed in section 11(b) of this rule.

(b) Where multiple uses have been designated for a body of water, the most protective of all simultaneously applicable standards will apply. *(Water Pollution Control Board; 327 IAC 2-1-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 580; filed Feb 1, 1990, 4:30 p.m.: 13 IR 1019; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1348)*

327 IAC 2-1-6 Minimum surface water quality standards

Sec. 6. (a) The following are minimum water quality conditions:

(1) All waters at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges:

(A) that will settle to form putrescent or otherwise objectionable deposits;

(B) that are in amounts sufficient to be unsightly or deleterious;

(C) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;

(D) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans:

(i) to assure protection of aquatic life, concentrations of toxic substances shall not exceed the final acute value (FAV = 2 (AAC)) in the undiluted discharge or the acute aquatic criterion (AAC) outside the zone of initial dilution or, if applicable, the zone of discharge-induced mixing:

(AA) for certain substances, the AAC are established and set forth in Table 1 (which table4 incorporates Table 2); and (BB) for substances for which an AAC is not specified in Table 1, or if a different AAC can be scientifically justified based on new toxicological data or site-specific conditions concerning water quality characteristics or species present, an AAC can be calculated by the commissioner using the procedures in section 8.2 of this rule; and

(ii) this clause shall not apply to the chemical control of plants and animals when that control is performed in compliance with approval conditions specified by the Indiana Department of Natural Resources as provided by IC 14-2-1; and

(E) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

(2) At all times, all waters outside of mixing zones shall be free of substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants. To assure protection against the adverse effects identified in this subdivision, the following requirements are established:

The Great Lakes Basin is covered by its own regulation which follows:

327 IAC 2-1.5-5: GLI Water Use Designations

327 IAC 2-1.5-5 Surface water use designations; multiple uses

Sec. 5. (a) The following water uses are designated by the board:

(1) All surface waters of the state within the Great Lakes system are designated for full-body contact recreation.

(2) All surface waters, except as described in subdivision (7), shall be capable of supporting a well-balanced, warm water aquatic community.

(3) Where natural temperatures will permit, surface waters shall be capable of supporting put-and-take trout fishing. All waters capable of supporting the natural reproduction of trout shall be so maintained. The following waters are designated as salmonid waters and shall be capable of supporting a salmonid fishery:
   (A) Trail Creek and its tributaries downstream to Lake Michigan.
   (B) East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch.
   (C) Salt Creek above its confluence with the Little Calumet River.
   (D) Kintzele Ditch (Black Ditch) from Beverly Drive downstream to Lake Michigan.
   (E) The Galena River and its tributaries in LaPorte County.
   (F) The St. Joseph River and its tributaries in St. Joseph County from the Twin Branch Dam in Mishawaka downstream to the Indiana/Michigan state line.
   (G) The Indiana portion of the open waters of Lake Michigan.
   (H) Those waters designated by the Indiana department of natural resources for put-and-take trout fishing.

(4) All surface waters used for public water supply are designated as a public water supply. This use designation and its corresponding water quality criteria are not to be construed as imposing a user restriction on those exercising or desiring to exercise the use.

(5) All surface waters used for industrial water supply are designated as an industrial water supply. This use designation and its corresponding water quality criteria are not to be construed as imposing a user restriction on those exercising or desiring to exercise the use.

(6) All surface waters used for agricultural purposes are designated as an agricultural use water.

(7) Limited use waters are designated under section 19(a) of this rule pursuant to section 18 of this rule. All waters that are designated as a limited use water under section 19(a) of this rule must be evaluated for restoration and upgrading at each triennial review of this rule.

(8) Outstanding state resource waters are designated under section 19(b) of this rule pursuant to section 18 of this rule.

(b) Where multiple uses have been designated for a body of water, the most protective of all simultaneously applicable standards will apply. (Water Pollution Control Board; 327 IAC 2-1.5-5; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1369)

327 IAC 2-1.5-8 Minimum surface water quality criteria

Sec. 8. (a) All surface water quality criteria in this section, except those provided in subsection (b)(1), will cease to be applicable when the stream flows are less than the applicable stream design flow for the particular criterion as determined under 327 IAC 5-2-11.4. (b) The following are minimum water quality conditions:

(1) All waters within the Great Lakes system at all times and at all places, including waters within the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges that do any of the following:
   (A) Will settle to form putrescent or otherwise objectionable deposits.
   (B) Are in amounts sufficient to be unsightly or deleterious.
   (C) Produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance.
   (D) Are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
   (E) Are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans. To assure protection of aquatic life, the waters shall meet the following requirements:
      (i) Concentrations of toxic substances shall not exceed the CMC outside the zone of initial dilution or the final acute value (FAV = 2 (CMC)) in the undiluted discharge unless, for a discharge to a receiving stream or Lake Michigan, an alternate mixing zone demonstration is conducted and approved in accordance with 327 IAC 5-2-11.4(b)(4), in which case, the CMC shall be met outside the discharge-induced mixing zone:

(2) At all times, all waters outside of the applicable mixing zones determined in accordance with 327 IAC 5-2-11.4(c) through 327 IAC 5-2-11.4(f) shall be free of substances in concentrations, that, on the basis of available scientific data, are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic...

Iowa

SOURCE: Iowa Administrative Code, Environmental Protection Rule 567, Chapter 61, Water Quality Standards, October 18, 2000:
http://www.state.ia.us/government/dnr/organiza/epd/prgrmdsc/wtrqual/spqual.htm
http://www.state.ia.us/epd/prgrmdsc/wtrqual/sum.htm and
http://www.state.ia.us/dnr/organiza/epd/wtrq/wtrqbor.htm

Class "B" Waters: Waters which are designated as Class "B" are to be protected for wildlife, fish, aquatic and semi-aquatic life and secondary contact water uses. Class "B" waters are divided into the following categories:

- Class "B" (CW) (cold water aquatic life): streams or lakes that support trout and associated aquatic communities
- Class "B" (WW) (significant resource warm water): lakes or rivers which support warm water game fish and associated aquatic communities, including sensitive species
- Class "B" (LR) (limited resource warm water): streams which support limited aquatic life populations primarily composed of minnows and other nongame fish species
- Class "B" (LW) (lakes and wetlands): artificial impoundments and natural lakes with lake-like conditions that support warm water game fish and associated aquatic communities

High Quality (HQ) waters: Waters with exceptionally better quality than specified by Iowa water quality criteria and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics that these waters possess.

High Quality Resource (HQR) waters: Waters of substantial recreational or ecological significance that possess unusual, outstanding or unique physical, chemical or biological characteristics that enhance the beneficial uses and warrant special protection.

Kansas

SOURCE: Kansas Register, Notice/Regulations, Administrative Regulations, Kansas Department of Health and Environment, Water Pollution Control, Chapter 28-1, Volume 20, Number 33, August 16, 2001: http://www.kdhe.state.ks.us/water/index.html#Proposed%20Regulations%20and%20 and http://www.kdhe.state.ks.us/environment/qmp_2000/SBMP_QAMP.pdf

Article 16. Surface Water Quality Standards

28-16-28b. Definitions.

(h) "Bioassessment methods and procedures" means the use of biological methods of assessing surface water quality including, but not limited to, field investigations of aquatic organisms and laboratory or field aquatic toxicity tests.

(k) "Biota" means the animal and plant life of a given geographical region.

(v) "Ecological integrity" means the natural or unimpaired structure and functioning of an aquatic or terrestrial ecosystem.

(oo) "Outstanding natural resource water" means any of the surface waters or surface water segments of exceptional recreational or ecological significance identified in the surface water register, as defined in K.A.R. 28-16-28b(uu), and afforded the highest level of water quality protection under the antidegradation provisions of K.A.R. 28-16-28c(a) and the mixing zone provisions of K.A.R. 28-16-28c(b).

(ddd) "Surface waters" means all of the following:

(1) Streams, including rivers, creeks, brooks, sloughs, draws, arroyos, canals, springs, seeps, and cavern streams, and any alluvial aquifers associated with these surface waters;

(2) lakes, including oxbow lakes and other natural lakes and man-made reservoirs, lakes, and ponds; and

(3) wetlands, including water bodies meeting the technical definition for jurisdictional wetlands given in the corps of engineers wetlands delineation manual," as published in January 1987, which is hereby adopted by reference.

28-16-28d. Surface water use designation and classification.

(a) Designated uses of surface waters are defined as follows.

(2) "Aquatic life support use" means the use of surface water for the maintenance of the ecological integrity of streams, lakes and wetlands, including the sustained growth and propagation of native aquatic life, indigenous or migratory semi-aquatic life, or terrestrial wildlife directly or indirectly dependent on surface water for survival.

(A) "Special aquatic life use waters" means either surface waters that contain combinations of habitat types and indigenous biota not found commonly in the state or surface waters that contain representative populations of threatened or endangered species.

(B) "Expected aquatic life use waters" means surface waters containing habitat types and indigenous biota commonly found or expected in the state.

(C) "Restricted aquatic life use waters" means surface waters containing indigenous biota limited in abundance diversity by the physical quality or availability of habitat, due to natural deficiencies or artificial modifications, compared to more suitable habitats in adjacent waters.

28-16-28e. Surface water quality criteria.

(a) Criteria development guidance. The development of surface water quality criteria for substances not listed in these standards shall be guided by water quality criteria published by the United States environmental protection agency. If the department finds that the criteria listed in this regulation are underprotective or overprotective for given surface water segment, appropriate site-specific criteria may be developed and applied by the department, in accordance with K.A.R. 28-16-28f(f), using bioassessment methods or other related scientific procedures...

(c) Criteria for designated uses of surface waters. The numeric criteria in tables 1a, 1b, 1c, 1d, and 1e shall not apply if the critical low flow is less than 0.03 cubic meters per second for waters designated as expected aquatic life use waters and restricted aquatic life use waters, unless studies conducted or approved by the department show that water present during periods of no flow, or flow below critical low flow, provides important refuges for aquatic life and permits biological recolonization of intermittently flowing segments. The numeric criteria in tables 1a, 1b, 1c, 1d, and 1e shall not apply if the critical low flow is less than 0.003 cubic meters per second for waters designated as special aquatic life use waters, unless studies conducted or approved by the department show that water present during periods of no flow, or flow below critical low flow, provides important refuges for aquatic life and permits biological recolonization of intermittently flowing segments. The following critieria shall apply to all classified surface waters for the indicated designated uses.

Kentucky

SOURCE: Title 401, Chapter 5, Kentucky Administrative Regulations (KAR), effective December 8, 1999: http://www.lrc.state.ky.us/kar/401/005/026.htm

401 KAR 5:002. Definitions for 401 KAR Chapter 5.

Section 1. Definitions.

(8) "Adversely affect" or "adversely change" means, for purposes of 401 KAR 5:026 through 5:031, to alter or change the community structure or function, to reduce the number or proportion of sensitive species, or to increase the number or proportion of pollution tolerant aquatic species so that aquatic life use support or aquatic habitat is impaired.

(54) "Cold water aquatic habitat" or "CAH" means surface waters and associated substrate that will support indigenous aquatic life or self-sustaining or reproducing trout populations on a year-round basis.

(124) "Impairment" means, for the purpose of 401 KAR 5:026 through 5:031, a detrimental impact to a surface water that prevents attainment of a designated use.

(127) "Indigenous aquatic life" means naturally occurring aquatic organisms including but not limited to bacteria, fungi, algae, aquatic insects, other aquatic invertebrates, reptiles, amphibians, and fishes. Under some natural conditions one (1) or more of the above groups may be absent from a surface water.

(233) "Productive aquatic community" means an assemblage of indigenous aquatic life capable of reproduction and growth.

(236) "Propagation" means the continuance of a species by successful spawning, hatching, and development or natural generation in the natural environment, as opposed to the maintenance of the species by artificial culture and stocking.

(250) "Representative important species" means species which are representative, in terms of their biological needs, of a balanced, indigenous community of shellfish, fish, and wildlife in the body of water into which a discharge of heat is made.

(317) "Warm water aquatic habitat" or "WAH" means any surface water and associated substrate capable of supporting indigenous warm water aquatic life.

401 KAR 5:026. Designation of uses of surface waters.

Section 1. Scope of Designation.

(2) Designated uses are:

(a) Warm water aquatic habitat;

(b) Cold water aquatic habitat;

(f) Outstanding state resource water.

(4) Outstanding state resource waters may have unique water quality characteristics that shall be protected by additional criteria established in 401 KAR 5:031, Section 7.

401 KAR 5:029. General provisions.

Section 3. Documentation for Redesignations.

(3) Documentation to support the redesignation of a surface water of the Commonwealth shall be:

(g) An assessment of the existing and potential aquatic life habitat in the surface waters under consideration and the adjacent upstream surface waters. The existing aquatic life shall be documented and livestock and natural wildlife dependence on the surface water shall be assessed. The occurrence of individuals or populations, indices of diversity and well-being, and abundance of species of any unique native biota shall be documented;

401 KAR 5:030. Antidegradation policy implementation methodology.

Section 1. Implementation of Antidegradation Policy..

(1) Categorization. Surface waters shall be placed into one (1) of three (3) categories:

(a) Outstanding national resource waters:

(b) Exceptional waters:

1. Surface water designated as a Kentucky Wild River, unless it is categorized as an outstanding national resource water;
2. Outstanding state resource water that does not support a federally threatened or endangered aquatic species;
3. Surface water that fully supports all applicable designated uses and contains:
   a. A fish community that is rated "excellent" by the use of the Index of Biotic Integrity included in "Methods for Assessing Biological Integrity of Surface Waters", incorporated by reference in Section 4 of this administration regulation; or
   b. A macroinvertebrate community that is rated "excellent" by the Macroinvertebrate Bioassessment Index included in "A Macroinvertebrate Bioassessment Index for Streams of the Interior Plateau Ecoregion in Kentucky", incorporated by reference in Section 4 of this administrative regulation; and
4. Water in the cabinet's reference reach network.

401 KAR 5:031. Surface water standards.

Section 2. Minimum Criteria Applicable to All Surface Waters.

(1) The following minimum water quality criteria are applicable to all surface waters including mixing zones, with the exception that toxicity to aquatic life in mixing zones shall be subject to the provisions of 401 KAR 5:029, Section 4. Surface waters shall not be aesthetically or otherwise degraded by substances that:

(d) Injure, are chronically or acutely toxic to or produce adverse physiological or behavioral responses in humans, animals, fish and other aquatic life;

(e) Produce undesirable aquatic life or result in the dominance of nuisance species;

Section 4. Aquatic Life.

(1) Warm water aquatic habitat. The following parameters and associated criteria shall apply for the protection of productive warm water aquatic communities, fowl, animal wildlife, arboreous growth, agricultural, and industrial uses:

(a) Natural alkalinity as $CaCO_3$ shall not be reduced by more than twenty-five (25) percent. If natural alkalinity is below twenty (20) mg/l $CaCO_3$, there shall not be a reduction below the natural level. Alkalinity shall not be reduced or increased to a degree which may adversely affect the aquatic community.

(c) Flow shall not be altered to a degree which will adversely affect the aquatic community.

(d) Temperature shall not exceed thirty-one and seven-tenths (31.7) degrees Celsius (eighty-nine (89) degrees Fahrenheit).

2. The cabinet may determine allowable surface water temperatures on a site-specific basis utilizing available data which shall be based on the effects of temperature on the aquatic biota which utilize specific surface waters of the Commonwealth and which may be affected

by person-induced temperature changes. Effects on downstream uses will also be considered in determining site-specific temperatures...

3. A successful demonstration concerning thermal discharge limits carried out under Section 316(a) of the Clean Water Act shall constitute compliance with the temperature requirements of this subsection. A successful demonstration assures the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in or on the water into which the discharge is made.

(f) Solids.

1. Total dissolved solids. Total dissolved solids shall not be changed to the extent that the indigenous aquatic community is adversely affected.
2. Total suspended solids. Total suspended solids shall not be changed to the extent that the indigenous aquatic community is adversely affected.
3. Settleable solids. The addition of settleable solids that may alter the stream bottom so as to adversely affect productive aquatic communities is prohibited.

Louisiana

SOURCE: Louisiana Administrative Code, Title 33: Environmental Regulatory Code, Part IX, Water Quality, March 20, 2001: http://www.deq.state.la.us/planning/regs/title33/33v09.pdf

Chapter 11. Surface Water Quality Standards

§1101. Introduction

A. The purpose of this Chapter is to establish surface water quality standards which will:

1. provide for the protection and preservation of the abundant natural resources of Louisiana's many and varied aquatic ecosystems;

§1105. Definitions

Biological and Aquatic Community Integrity—the condition of the aquatic community inhabiting a specified habitat as measured by community structure and function.

Biological Succession—the gradual and orderly process of ecosystem or community development brought about by changes in species populations that culminates in the production of a climax characteristic of a particular geographic region.

Fresh Warmwater Biota—those aquatic life species whose populations typically inhabit waters with warm temperatures (seasonal averages above 20 o C, 68 o F) and low salinities (less than 2 parts per thousand,‰), including but not limited to, black basses and freshwater sunfish and catfish and characteristic freshwater aquatic invertebrates and wildlife.

Marine Water Biota—those aquatic life species whose populations typically inhabit waters with salinities equal to or greater than 2 parts per thousand (‰) including but not limited to characteristic fishes, invertebrates and wildlife of coastal waters and the Gulf of Mexico.

§1109. Policy

B. Water Use

1. It is the policy of the state of Louisiana that all state waters should be protected for recreational uses and for the preservation and propagation of desirable species of aquatic biota and indigenous species of wildlife...
2. In applying this policy, the terms "recreational uses" and "desirable species of aquatic biota" will be given common sense applications. Recreational uses will be classified as either "primary contact" or "secondary contact." "Desirable species of aquatic biota" refers to a diverse and naturally occurring range of aquatic biota and not to species that exist in the area in question in disproportionate numbers as a result of wastewater discharges. Desirable species of fish, shellfish and other invertebrates, wildlife, and other aquatic biota will be specified as "fresh warmwater" or "marine water" species. All future designations of water uses and their associated criteria must, at a minimum, adhere to these classifications, except as provided in LAC 33:IX.1109.B.3 and C. will

be viewed as a problem to be solved, not as an impediment to categorizing water bodies or assigning designated uses...

§1111. Water Use Designations

C. Fish and Wildlife Propagation. Fish and wildlife propagation includes the use of water for aquatic habitat, food, resting, reproduction, cover, and/or travel corridors for any indigenous wildlife and aquatic life species associated with the aquatic environment. This use also includes the maintenance of water quality at a level that prevents damage to indigenous wildlife and aquatic life species associated with the aquatic environment and contamination of aquatic biota consumed by humans. The subcategory of "limited aquatic life and wildlife use" recognizes the natural variability of aquatic habitats, community requirements, and local environmental conditions. Limited aquatic life and wildlife use may be designated for water bodies having habitat that is uniform in structure and morphology with most of the regionally expected aquatic species absent, low species diversity and richness, and/or a severely imbalanced trophic structure. Aquatic life able to survive and/or propagate in such water bodies include species tolerant of severe or variable environmental conditions. Water bodies that might qualify for the limited aquatic life and wildlife use subcategory include intermittent streams and man-made water bodies with characteristics including, but not limited to, irreversible hydrologic modification, anthropogenically and irreversibly degraded water quality, uniform channel morphology, lack of channel structure, uniform substrate, lack of riparian structure, and similar characteristics making the available habitat for aquatic life and wildlife suboptimal. Limited aquatic life and wildlife use will be denoted in Table 3 (LAC 33:IX.1123) as an “L.”

E. Oyster Propagation. Oyster propagation is the use of water to maintain biological systems that support economically important species of oysters, clams, mussels, or other mollusks so that their productivity is preserved and the health of human consumers of these species is protected.
This use shall apply only to those water bodies named in the Numerical Criteria and Designated Uses Table and not to their tributaries or distributaries unless so specified.

G. Outstanding Natural Resource Waters. Outstanding natural resource waters include water bodies designated for preservation, protection, reclamation, or enhancement of wilderness, aesthetic qualities, and ecological regimes, such as those designated under the Louisiana Natural and Scenic Rivers System or those designated by the department as waters of ecological significance. Characteristics of outstanding natural resource waters include, but are not limited to, highly diverse or unique instream and/or riparian habitat, high species diversity, balanced trophic structure, unique species, or similar qualities. This use designation applies only to the water bodies specifically identified in Table 3 (LAC 33:IX.1123) and not to their tributaries or distributaries unless so specified.

§1113. Criteria

B. General Criteria.

12. Biological and Aquatic Community Integrity. The biological and community structure and function in state waters shall be maintained, protected, and restored except where not attainable and feasible as defined in LAC 33:IX.1109.B.3. This is the ideal condition of the aquatic community inhabiting the unimpaired water bodies of a specified habitat and region as measured by community structure and function. The biological integrity will be guided by the fish and wildlife propagation use designated for that particular water body. Fish and wildlife propagation uses are defined in LAC 33:IX.1111.C. The condition of these aquatic communities shall be determined from the measures of physical, chemical, and biological characteristics of each surface water body type, according to its designated use (LAC 33:IX.1123). Reference site conditions will represent naturally attainable conditions. These sites should be the least impacted and most representative of water body types. Such reference sites or segments of water bodies shall be those observed to support the greatest variety and abundance of aquatic life in the region as is expected to be or has been recorded during past surveys in natural settings essentially undisturbed by human impacts, development, or discharges. This condition shall be determined by consistent sampling and reliable measures of selected, indicative communities of animals and/or invertebrates as established by the department and may be used in conjunction with acceptable chemical, physical, and microbial water quality measurements and records as deemed for this purpose.

Maine

SOURCE: Title 38, Section 464, Maine Revised Statutes, 1999:
http://janus.state.me.us/legis/statutes/38/title38sec464.html and http://www.state.me.us/dep/blwq

38 MRSA Section 464. Classification of Maine waters:

1. **Findings; objectives; purpose.**...The Legislature declares that it is the State's objective to restore and maintain the chemical, physical and biological integrity of the State's waters and to preserve certain pristine state waters. The Legislature further declares that in order to achieve this objective the State's goals are:
   C. That water quality be sufficient to provide for the protection and propagation of fish, shellfish and wildlife and provide for recreation in and on the water.
4. **General provisions.** The classification system for surface waters established by this article shall be subject to the following provisions.
   F. The antidegradation policy of the State is governed by the following provisions.
      (1) ...Determinations of what constitutes an existing in-stream water use on a particular water body must be made on a case-by-case basis by the department. In making its determination of uses to be protected and maintained, the department shall consider designated uses for that water body and:
         (a) Aquatic, estuarine and marine life present in the water body;
         (b) Wildlife that utilize the water body;
         (c) Habitat, including significant wetlands, within a water body supporting existing populations of wildlife or aquatic, estuarine or marine life, or plant life that is maintained by the water body;
         (d) Any other evidence that, for divisions (a), (b) and (c), demonstrates their ecological significance because of their role or importance in the functioning of the ecosystem or their rarity and, for division (d), demonstrates its historical or social significance.

      (1-A) The department may only issue a waste discharge license pursuant to section 414-A, or approve a water quality certification pursuant to the United States Clean Water Act, Section 401, Public Law 92-500, as amended, when the department finds that:
         (a) The existing in-stream use involves use of the water body by a population of plant life, wildlife, or aquatic, estuarine or marine life, or as aquatic, estuarine, marine, wildlife, or plant habitat, and the applicant has demonstrated that the proposed activity would not have a significant impact on the existing use. For purpose of this division, significant impact means:
            (i) Impairing the viability of the existing population, including significant impairment to growth and reproduction or an alteration of the habitat which impairs viability of the existing population; or

         The department shall determine what constitutes a population of a particular species based upon the degree of geographic and reproductive isolation from other individuals of the same species.

6. **Implementation of biological water quality criteria.** The implementation of water quality criteria pertaining to the protection of the resident biological community shall be governed by the provisions of this subsection.
   A. At any time during the term of a valid wastewater discharge license that was issued prior to the effective date of this article, the board may modify that license in accordance with section 341-D, subsection 3 if the discharger is not in compliance with the water quality criteria pertaining to the protection of the resident biological community. When a discharge license is modified under this subsection, the board shall establish a reasonable schedule to bring the discharge into compliance with the water quality criteria pertaining to the protection of the resident biological community.
   B. When a discharge license is issued after the effective date of this article and before the effective date of the rules adopted pursuant to subsection 5, the department shall establish a reasonable schedule to bring the discharge into compliance with the water quality criteria pertaining to the protection of the resident biological community.

38 MRSA § 465. Standards for classification of fresh surface waters

The department shall have 4 standards for the classification of fresh surface waters which are not classified as great ponds.

1. Class AA waters. Class AA shall be the highest classification and shall be applied to waters which are outstanding natural resources and which should be preserved because of their ecological, social, scenic or recreational importance.
   A. Class AA waters shall be of such quality that they are suitable... as habitat for fish and other aquatic life. The habitat shall be characterized as free flowing and natural.
   B. The aquatic life, dissolved oxygen and bacteria content of Class AA waters shall be as naturally occurs.

2. Class A waters. Class A shall be the 2nd highest classification.
   A. Class A waters shall be of such quality that they are suitable...as habitat for fish and other aquatic life. The habitat shall be characterized as natural.
   B. ...The aquatic life and bacteria content of Class A waters shall be as naturally occurs.

3. Class B waters. Class B shall be the 3rd highest classification.
   A. Class B waters shall be of such quality that they are suitable... as habitat for fish and other aquatic life. The habitat shall be characterized as unimpaired.
   B. The dissolved oxygen content of Class B waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species...
   C. Discharges to Class B waters shall not cause adverse impact to aquatic life in that the receiving waters shall be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community.

4. Class C waters. Class C shall be the 4th highest classification.
   A. Class C waters shall be of such quality that they are suitable...as a habitat for fish and other aquatic life.
   B. The dissolved oxygen content of Class C water may be not less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained...
   C. Discharges to Class C waters may cause some changes to aquatic life, provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.

38 MRSA § 466. Definitions: http://janus.state.me.us/legis/statutes/38/title38sec466.html

1. **Aquatic life.** "Aquatic life" means any plants or animals which live at least part of their life cycle in fresh water.

2. **As naturally occurs.** "As naturally occurs" means conditions with essentially the same physical, chemical and biological characteristics as found in situations with similar habitats free of measurable effects of human activity.

3. **Community function.** "Community function" means mechanisms of uptake, storage and transfer of life-sustaining materials available to a biological community which determines the efficiency of use and the amount of export of the materials from the community.

4. **Community structure.** "Community structure" means the organization of a biological community based on numbers of individuals within different taxonomic groups and the proportion each taxonomic group represents of the total community.

10. **Resident biological community.** "Resident biological community" means aquatic life expected to exist in a habitat which is free from the influence of the discharge of any pollutant. This shall be established by accepted biomonitoring techniques.

11. **Unimpaired.** "Unimpaired" means without a diminished capacity to support aquatic life.

12. **Without detrimental changes in the resident biological community.** "Without detrimental changes in the resident biological community" means no significant loss of species or excessive dominance by any species or group of species attributable to human activity.

Maryland

SOURCE: Code of Maryland Regulations, Title 26, Department of the Environment, Subtitle 08 Water Pollution, Subpart 26.0.02, November 6, 1995: COMAR 26.08.02.01, Surface Water Quality Protection and 26.08.02.02, Designated Uses: https://constmail.gov.state.md.us/comar/26/26.08.02.01.htm and https://constmail.gov.state.md.us/comar/26/26.08.02.02.htm

.01 Surface Water Quality Protection

A. Purpose. To protect surface water quality, this State shall adopt water quality standards to:
   (1) Protect public health or welfare;
   (2) Enhance the quality of water;
   (3) Protect aquatic resources; and
   (4) Serve the purposes of the Federal Act.

B. Water Quality Standards.
   (2) Water quality standards shall, wherever attainable, provide water quality for the designated uses of:
      (b) Fishing;
      (c) Propagation of fish, other aquatic life, and wildlife...

.02 Designated Uses

A. General.
   (1) Waters of this State shall, wherever attainable, be protected for the basic uses of water contact recreation, fishing, protection of aquatic life and wildlife, and agricultural and industrial water supply as identified in Use I.

B. Specific Designated Uses.
   (1) Use I: Water Contact Recreation, and Protection of Aquatic Life. This use designation includes waters which are suitable for:
      (c) Fishing;
      (d) The growth and propagation of fish (other than trout), other aquatic life, and wildlife;

   (2) Use I-P: Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply. This use designation includes:
      (a) All uses identified for Use I....

   (3) Use II: Shellfish Harvesting Waters. This use designation includes waters where:
      (a) Shellfish are propagated, stored, or gathered for marketing purposes; and
      (b) There are actual or potential areas for the harvesting of oysters, softshell clams, hardshell clams, and brackish water clams.

   (4) Use III: Natural Trout Waters. This use designation includes waters which have the potential for or are:
      (a) Suitable for the growth and propagation of trout; and
      (b) Capable of supporting self-sustaining trout populations and their associated food organisms.

   (5) Use III-P: Natural Trout Waters and Public Water Supply. This use designation includes:
      (a) All uses identified for Use III waters; and...

   (6) Use IV: Recreational Trout Waters. This use designation includes cold or warm waters which have the potential for or are:

(a) Capable of holding or supporting adult trout for put-and-take fishing; and
(b) Managed as a special fishery by periodic stocking and seasonal catching.

(7) Use IV-P: Recreational Trout Waters and Public Water Supply. This use designation includes:
(a) All uses identified for Use IV waters; and...

Massachusetts

SOURCE: 314 CMR 4.00: Massachusetts Surface Water Quality Standards, effective May 12, 2000: http://www.state.ma.us/dep/bwp/iww/files/314cmr4.htm

4.02: Definitions

Aquatic Life - A native, naturally diverse, community of aquatic flora and fauna.

Cold Water Fishery - Waters in which the maximum mean monthly temperature generally does not exceed 68°F (20°C) and, when other ecological factors are favorable (such as habitat), are capable of supporting a year-round population of cold water stenothermal aquatic life such as trout (*salmonidae*).

Vernal Pool - A waterbody that has been certified by the Massachusetts Division of Fisheries and Wildlife as a vernal pool.

Warm Water Fishery - Waters in which the maximum mean monthly temperature generally exceeds 68°F (20°C) during the summer months and are not capable of sustaining a year-round population of cold water stenothermal aquatic life.

4.05 Classes and Criteria

(3) Inland Water Classes:
(a) Class A - These waters are designated as a source of public water supply. To the extent compatible with this use they shall be an excellent habitat for fish, other aquatic life and wildlife, and suitable for primary secondary contact recreation. These waters shall have excellent aesthetic value. These waters are designated for protection as Outstanding Resource Waters under 314 CMR 4.04(3).
1. Dissolved Oxygen -
a. Shall not be less than six mg/l unless background conditions are lower;
b. natural seasonal and daily variations above this level shall be maintained; levels shall not be lowered below 75% of saturation due to a discharge; and
c. site-specific criteria may apply where back-ground levels are lower than specified levels or to the hypolimnion of stratified lakes where the Department determines that designated uses are not impaired.
2. Temperature -
a. Shall not exceed 68˚F (20˚C) in cold water fisheries, nor 83˚F (28.3˚C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed 1.5˚F (0.8˚C); and
b. natural seasonal and daily variations shall be maintained. There shall be no changes from background conditions that would impair any use assigned to this Class, including site-specific limits necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms.
5. Solids - These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

(b) Class B - These waters are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.
1. Dissolved Oxygen

a. Shall not be less than 6.0 mg/l in cold water fisheries nor less than 5.0 mg/l in warm water fisheries unless background conditions are lower;
b. natural seasonal and daily variations above these levels shall be maintained; levels shall not be lowered below 75% of saturation in cold water fisheries nor 60% of saturation in warm water fisheries due to a discharge; and
c. site-specific criteria may apply where background levels are lower than specified levels, to the hypolimnion of stratified lakes or where the Department determines that designated uses are not impaired.

2. Temperature -
a. Shall not exceed 68˚F (20˚C) in cold water fisheries nor 83˚F (28.3˚C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed 3˚F (1.7˚C) in rivers and streams designated as cold water fisheries nor 5˚F (2.8˚C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month); in lakes and ponds the rise shall not exceed 3˚F (1.7˚C) in the epilimnion (based on the monthly average of maximum daily temperature); and
b. natural seasonal and daily variations shall be maintained. There shall be no changes from background conditions that would impair any use assigned to this Class, including site-specific limits necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms.

5. Solids - These waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

(c) Class C - These waters are designated as a habitat for fish, other aquatic life and wildlife, and for secondary contact recreation. These waters shall be suitable for the irrigation of crops used for consumption after cooking and for compatible industrial cooling and process uses. These waters shall have good aesthetic value.

1. Dissolved Oxygen -
a. Shall not be less than 5.0 mg/l at least 16 hours of any 24-hour period and not less than 3.0 mg/l at any time unless background conditions are lower;
b. natural seasonal and daily variations above these levels shall be maintained; levels shall not be lowered below 50% of saturation due to a discharge; and (c) site-specific criteria may apply where background levels are lower than specified levels, or to the hypolimnion of stratified lakes where the Department determines that designated uses are not impaired.

2. Temperature -
a. Shall not exceed 85˚F (29.4˚C) nor shall the rise due to a discharge exceed 5F (2.8˚C); and
b. Natural seasonal and daily variations shall be maintained. There shall be no changes from background conditions that would impair any use assigned to this Class, including the site-specific limits necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms.

5. Solids - These waters shall be free from floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom.

Michigan*

*This language has not been reviewed for accuracy by state/tribal agency.

SOURCE: Department of Environmental Quality Environmental Response Division General Rules, Part 4. Water Quality Standards: http://www.deq.state.mi.us/documents/deq-swq-gleas-305b2002Appl.doc

R 323.1043 Definitions; A to L

Rule 43

(b) "Acceptable wildlife endpoints" means subchronic and chronic endpoints that affect reproductive or developmental success, organismal viability, or growth or any other endpoint that is, or is directly related

to, a parameter that influences population dynamics.

(d) "Adverse effect" means any deleterious effect to organisms due to exposure to a substance. The term includes effects that are or may become debilitating, harmful, or toxic to the normal functions of the organism. The term does not include nonharmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

(f) "Anadromous salmonids" means trout and salmon that ascend streams to spawn.

(r) "Coldwater fishery" means waterbodies that contain fish species which thrive in relatively cold water, including any of the following:
  (i) Trout.
  (ii) Salmon.
  (iii) Whitefish.
  (iv) Cisco.

(x) "Designated use" means a use of the surface waters of the state as established by these rules, including use for any of the following:
  (i) Industrial, agricultural, and public water supply.
  (ii) Recreation.
  (iii) Warmwater and coldwater fisheries, other aquatic life, and wildlife.
  (iv) Navigation.

(hh) "Fisheries, other aquatic life, and wildlife use" means the use of the surface waters of the state by fish, other aquatic life, and wildlife for any life history stage or activity and the protection of fish for human consumption.

R 323.1044 Definitions; M to W.

Rule 44.

(c) "Natural water temperature" means the temperature of a body of water without an influence from an artificial source or a temperature as otherwise determined by the department.

(dd) "Warmwater fishery" means a waterbody that contains fish species which thrive in relatively warm water, including any of the following:
  (i) Bass.
  (ii) Pike.
  (iii) Walleye.
  (iv) Panfish.

Minnesota

SOURCE: Minnesota Rules, Chapter 7050, Minnesota Pollution Control Agency Waters of the State, October 11, 2000: http://www.revisor.leg.state.mn.us/arule/7050/

7050.0150 Determination of Water Quality Condition and Compliance,

The intent of the state is to protect and maintain surface waters in a condition which allows for the maintenance of all existing beneficial uses. The condition of a surface water body is determined by its physical, chemical, and biological qualities.

The biological quality of any given surface water body shall be assessed by comparison to the biological integrity of a reference condition or conditions which best represents the most natural condition for that surface water body type within a geographic region. The biological quality shall be determined by reliable measures of indicative communities of fauna and flora.

7050.0200 Water Use Classifications for Waters of the State:

Subpart. 3. Class 2 waters, aquatic life and recreation. Aquatic life and recreation includes all waters of the state which do or may support fish, other aquatic life, bathing, boating, or other recreational purposes, and where quality control is or may be necessary to protect aquatic or terrestrial life or their habitats, or the public health, safety, or welfare.

Subp. 5. Class 4 waters, agriculture and wildlife. Agriculture and wildlife includes all waters of the state which are or may be used for any agriculture purposes, including stock watering and irrigation, or by

waterfowl or other wildlife, and for which quality control is or may be necessary to protect terrestrial life and its habitat or the public health, safety, or welfare.

Subp. 8. Class 7 waters, limited resource value waters. Limited resource value waters include surface waters of the state which have been subject to a use attainability analysis and have been found to have limited value as a water resource... The agency, in cooperation and agreement with the Department of Natural Resources with respect to determination of fisheries values and potential, shall use this information to determine the extent to which the waters of the state demonstrate:

A. the existing and potential faunal and floral communities are severely limited by natural conditions as exhibited by poor water quality characteristics, lack of habitat, or lack of water; or
B. the quality of the resource has been significantly altered by human activity and the effect is essentially irreversible; and
C. there are limited recreational opportunities (such as fishing, swimming, wading, or boating) in and on the water resource...

7050.0222 SPECIFIC STANDARDS OF QUALITY AND PURITY FOR CLASS 2 WATERS OF THE STATE; AQUATIC LIFE AND RECREATION.

Subp. 2. Class 2A waters; aquatic life and recreation. The quality of Class 2A surface waters shall be such as to permit the propagation and maintenance of a healthy community of cold water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water...

Subp. 3. Class 2Bd waters. The quality of Class 2Bd surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters are also protected as a source of drinking water...

Subp. 4. Class 2B waters. The quality of Class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water...

Subp. 5. Class 2C waters. The quality of Class 2C surface waters shall be such as to permit the propagation and maintenance of a healthy community of indigenous fish and associated aquatic life, and their habitats. These waters shall be suitable for boating and other forms of aquatic recreation for which the waters may be usable...

Subp. 6. Class 2D waters. The quality of Class 2D wetlands shall be such as to permit the propagation and maintenance of a healthy community of aquatic and terrestrial species indigenous to wetlands, and their habitats. Wetlands also add to the biological diversity of the landscape. These waters shall be suitable for boating and other forms of aquatic recreation for which the wetland may be usable...

Mississippi

SOURCE: State of Mississippi Water Quality Criteria for Intrastate, Interstate and Coastal Waters, Adopted November 16, 1995: http://www.deq.state.ms.us/newweb/opchome.nsf/pages/SurfaceWaterfiles/$file/wqc.pdf

SECTION III. SPECIFIC WATER QUALITY CRITERIA

4. FISH AND WILDLIFE:
Waters in this classification are intended for fishing and for propagation of fish, aquatic life, and wildlife. Waters that meet the Fish and Wildlife Criteria shall also be suitable for secondary contact recreation. Secondary contact recreation is defined as incidental contact with the water, including wading and occasional swimming.

5. EPHEMERAL STREAM:
Waters in this classification do not support a fisheries resource and are not usable for human consumption or aquatic life. Ephemeral streams normally are natural watercourses, including natural watercourses that have been modified by channelization or manmade drainage ditches, that without the influent of point source discharges flow only in direct response to precipitation or irrigation return-water discharge in the immediate vicinity and whose channels are normally above the groundwater table. These streams may contain a transient population of aquatic life during the portion of the year when there is suitable habitat for fish survival. Normally, aquatic habitat in these streams is not adequate to support a reproductive cycle for fish and other aquatic life. Wetlands are excluded from this classification.

Waters in this classification shall be protective of wildlife and humans which may come in contact with the waters. Waters contained in ephemeral streams shall also allow maintenance of the standards applicable to all downstream waters.

Missouri

SOURCE: Missouri Rules of Department of Natural Resources Division 20—Clean Water Commission Chapter 7—Water Quality, August 31, 2000:
http://www.epa.gov/waterscience/standards/wqslibrary/mo/mo_7_wqs.pdf;
http://mosl.sos.state.mo.us/csr/10csr/10c20-7a.pdf and www.dnr.state.mo.us/water

10 CSR 20-7.031 Water Quality Standards:
(1) Definitions.
(C) Beneficial water uses...
2. Livestock and wildlife watering—Maintenance of conditions to support health in livestock and wildlife.
3. Cold-water fishery—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a naturally reproducing or stocked trout fishery and other naturally reproducing populations of recreationally important fish species.
4. Cool-water fishery—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a sensitive, high-quality sport fishery (including smallmouth bass and rock bass) and other naturally reproducing populations of recreationally important fish species.
5. Protection of aquatic life (General warm-water fishery)—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of warm-water biota, including naturally reproducing populations of recreationally important fish species...
6. Protection of aquatic life (Limited warm-water fishery)—Waters in which natural water quality and/or habitat conditions prevent the maintenance of naturally reproducing populations of recreationally important fish species.
13. Habitat for resident and migratory wildlife species, including rare and endangered species—Waters that provide essential breeding, nesting, feeding and predator escape habitats for wildlife including water-fowl, birds, mammals, fish, amphibians and reptiles.

(D) Biocriteria—Numeric values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters that have been designated for aquatic-life protection.

(G) Ecoregion—A major region within the logical, hydrological, chemical and biological characteristics.

(O) Outstanding national resource waters—Waters which have outstanding national recreational and

ecological significance.

(R) Reference stream reaches—Stream reaches determined by the department to be the best available representatives of ecoregion waters in a natural condition, with respect to habitat, water quality, biological integrity and diversity, watershed land use and riparian conditions.

(4) Specific Criteria

(Q) Biocriteria. The biological integrity of waters, as measured by lists or numeric diversity indices of benthic invertebrates, fish, algae or other appropriate biological indicators, shall not be significantly different from reference waters. Waters shall be compared with reference waters of similar size within an ecoregion.

Montana

SOURCE: Administrative Rules of Montana, Rule 17, Chapter 30, Water Quality, Subchapter 6, Surface Water Quality Standards and Procedures, June 30, 1996:
http://www.deq.state.mt.us/dir/Legal/Chapters/CH30-06.pdf and www.deq.state.mt.us

17.30.601 POLICY

(1) The following standards are adopted to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses.

17.30.602 DEFINITIONS

(10)"Ephemeral stream" means a stream or part of a stream which flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and whose channel bottom is always above the local water table.

(13)"Intermittent stream" means a stream or reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface runoff and groundwater discharge.

(17)"Naturally occurring" means conditions or material present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Conditions resulting from the reasonable operation of dams in existence as of July 1, 1971 are natural.

17.30.621 A-CLOSED CLASSIFICATION STANDARDS

(1) Waters classified A-Closed are suitable for drinking, culinary, and food processing purposes after simple disinfection. Water quality is suitable for swimming, recreation, growth, and propagation of fishes and associated aquatic life...

(3) No person may violate the following specific water quality standards for waters classified A-Closed:

(f) No increases are allowed above naturally occurring concentrations of sediment, settleable solids, oils, or floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife.

17.30.622-17.30.627 CLASSIFICATION STANDARDS

A-1, B-1, B-2, B-3, C-1, and C-2 classification standards state that water quality must be suitable for...growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers....[and other uses as assigned for each class]. [The following condition applies to these classifications:]

(3) No person may violate the following specific water quality standards for waters classified A-1:

(f) No increases are allowed above naturally occurring concentrations of sediment, settleable solids, oils, or floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife.

17.30.628 I CLASSIFICATION STANDARDS

(1) The goal of the state of Montana is to have these waters fully support the following uses: drinking, culinary, and food processing purposes after conventional treatment; bathing, swimming, and recreation; growth and propagation of fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply...

17.30.629 C-3 CLASSIFICATION STANDARDS

(1) Waters classified C-3 are suitable for bathing, swimming and recreation, growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers...

Nebraska

SOURCE: Title 117 - Nebraska Surface Water Quality Standards, Nebraska Department of Environmental Quality, Chapter 4: Standards for Water Quality, August 22, 2000: http://www.deq.state.ne.us/

001 It is the public policy of the State of Nebraska to protect and improve the quality of surface water for human consumption, wildlife, fish and other aquatic life, industry, recreation, and other productive, beneficial uses.

The beneficial uses defined by these standards are:

Aquatic Life

Coldwater (Class A and B)

Warmwater (Class A and B)

003.01G Biological Criteria. Any human activity causing water pollution which would significantly degrade the biological integrity of a body of water or significantly impact or displace an identified "key species" shall not be allowed except as specified in Chapter 2.

003.01G1 Key Species. Key species are identified endangered, threatened, sensitive, or recreationally-important aquatic species. Key species are designated by stream segment (Chapter 5). The following list defines the aquatic species considered by the Department to be key species.

COMMON NAME	SCIENTIFIC NAME
Endangered Species:	
Pallid sturgeon	*Scaphirhynchus albus*
Topeka shiner	*Notropis topeka*
Threatened Species:	
Lake sturgeon	*Acipenser fulvescens*
Northern redbelly dace	*Phoxinus eos*
Pearl dace	*Semotilus margarita*
Finescale dace	*Phoxinus neogaeus*
Blacknose shiner	*Notropis heterolepis*
Sensitive Species:	
Lake chub	*Couesius plumbeus*
Brook stickleback	*Culea inconstans*
Iowa darter	*Etheostoma exile*
Johnny darter	*Etheostoma nigrum*
Orangethroat darter	*Etheostoma spectabile*
Blacknose dace	*Rhinichthys atratulus*
Grass pickerel	*Esox americanus*
Pumpkinseed	*Lepomis gibbosus*
Golden shiner	*Notemigonus crysoleucas*
Common shiner	*Notropis cornutus*

COMMON NAME	SCIENTIFIC NAME
Recreationally-Important Species:	
Shovelnose sturgeon	*Scaphirhynchus platorynchus*
Paddlefish	*Polyodon spathula*
Brook trout	*Salvelinus fontinalis*
Brown trout	*Salmo trutta*
Rainbow trout	*Oncorhynchus mykiss*
Northern pike	*Esox lucius*
Muskellunge	*Esox masquinongy*
Blue catfish	*Ictalurus furcatus*
Channel catfish	*Ictalurus punctatus*
Flathead catfish	*Pylodictis olivaris*
Striped bass	*Morone saxatilis*
White bass	*Morone chrysops*
Rock bass	*Ambloplites rupestris*
Largemouth bass	*Micropterus salmoides*
Smallmouth bass	*Micropterus dolomieui*
Spotted bass	*Micropterus punctulatus*
Redear sunfish	*Lepomis microlophus*
Bluegill	*Lepomis macrochirus*
Black crappie	*Pomoxis nigromaculatus*
White crappie	*Pomoxis annularis*
Yellow perch	*Perca flavescens*
Sauger	*Stizostedion canadense*
Walleye	*Stizostedion vitreum vitreum*

[1] Endangered, threatened, and recreationally-important aquatic species are not included.

003.02 Site-Specific Criteria for Aquatic Life.

003.02A1 The following are acceptable conditions for developing site-specific criteria.

003.02A1a Resident species of a water body are more or less sensitive than those species used to develop a water quality criterion.

003.02A1a(1) Natural adaptive processes have enabled a viable, balanced aquatic community to exist in waters where natural background levels of a chemical exceed the criterion (e.g., resident species have evolved a genetically-based greater resistance to high concentrations of a chemical).

003.02A1a(2) The composition of aquatic species in a water body is different from those used in deriving a criterion (e.g., most of the species considered among the most sensitive, such as salmonids or the cladoceran, Daphnia magna, which were used in developing a criterion, are absent from a water body).

003.02A3 Site-specific criteria shall protect all life stages of resident species year-round (or seasonally for seasonally dependent criteria) and prevent acute and chronic toxicity in all parts of a water body...

Nevada

SOURCE: Nevada Administrative Code, Chapter 445A, Standards for Water Quality, September 2000: http://www.ndep.state.nv.us/nac/445a119.pdf

NAC 445A.119 Criteria for water quality for designated beneficial uses. The water quality criteria for designated beneficial uses for the various waters of the state are in the following table.

[NOTE: In this section of NV's standards, the table titled *Water Quality Criteria for Designated Beneficial*

Uses includes Aquatic Life with the following levels: Warmwater: propagation and put and take and Coldwater: propagation and put and take.]

NAC 445A.122 Standards applicable to beneficial uses.

1. The following standards are intended to protect both existing and designated beneficial uses and must not be used to prohibit the use of the water as authorized under Title 48 of NRS:
   (c) Aquatic life. The water must be suitable as a habitat for fish and other aquatic life existing in a body of water. This does not preclude the reestablishment of other fish or aquatic life.
   (h) Propagation of wildlife. The water must be suitable for the propagation of wildlife and waterfowl without treatment.
   (i) Waters of extraordinary ecological or aesthetic value. The unique ecological or aesthetic value of the water must be maintained.

NAC 445A.124 Class A waters: Description; beneficial uses; quality standards.

1. Class A waters include waters or portions of waters located in areas of little human habitation, no industrial development or intensive agriculture and where the watershed is relatively undisturbed by man's activity.
2. The beneficial uses of class A waters are... aquatic life, propagation of wildlife, irrigation, watering of livestock, recreation including contact with the water and recreation not involving contact with the water.

NAC 445A.125 Class B waters: Description; beneficial uses; quality standards.

1. Class B waters include waters or portions of waters which are located in areas of light or moderate human habitation, little industrial development, light-to-moderate agricultural development and where the watershed is only moderately influenced by man's activity.
2. The beneficial uses of class B water are ...aquatic life and propagation of wildlife, recreation involving contact with the water...

NAC 445A.126 Class C waters: Description; beneficial uses; quality standards.

1. Class C waters include waters or portions of waters which are located in areas of moderate-to-urban human habitation, where industrial development is present in moderate amounts, agricultural practices are intensive and where the watershed is considerably altered by man's activity.
2. The beneficial uses of class C water are ... aquatic life, propagation of wildlife...

NAC 445A.127 Class D waters: Description; beneficial uses; quality standards.

1. Class D waters include waters or portions of waters located in areas of urban development, highly industrialized or intensively used for agriculture or a combination of all the above and where effluent sources include a multiplicity of waste discharges from the highly altered watershed.
2. The beneficial uses of class D waters are ... aquatic life, propagation of wildlife...

New Hampshire

SOURCE: New Hampshire Code of Administrative Rules Chapter Env-Ws 1700 Surface Water Quality Regulations, December 10, 1999: http://www.des.state.nh.us/wmb/Env-Ws1700.pdf

PART Env-Ws 1702 DEFINITIONS

Env-Ws 1702.04 "Benthic community" mean the community of plants and animals that live on, over, or in the substrate of the surface water.

Env-Ws 1702.07 "Biological integrity" means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

Env-Ws 1702.08 "Biota" means species of plants or animals occurring in surface waters.

PART Env-Ws 1703 WATER QUALITY STANDARDS

Env-Ws 1703.01 Water Use Classifications.

(b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.

(c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.

Env-Ws 1703.19 Biological and Aquatic Community Integrity.

(a) The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

(b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.

PART Env-Ws 1707 MIXING ZONES

Env-Ws 1707.02 Minimum Criteria. Mixing zones shall be subject to site specific criteria that, as a minimum:

(b) Do not interfere with biological communities or populations of indigenous species;

(f) Do not impinge upon spawning grounds and/or nursery areas of any indigenous aquatic species;

(g) Do not result in the mortality of any plants, animals, humans, or aquatic life within the mixing zone.

New Jersey

SOURCE: New Jersey Administrative Code 7:9-B (Chapter 9B. Surface Water Quality Standards), as amended May 18, 1998: http://www.state.nj.us/dep/watershedmgt/swqs/98swqs_web.pdf

7:9B-1.4 Definitions

"Anadromous fish" means fish that spend most of their life in saline waters and migrate to fresh waters to spawn.

"Aquatic substrata" means soil material and associated biota underlying the water.

"Biota" means the animal and plant life of an ecosystem; flora and fauna collectively.

"Diadromous fish" means fish that spend most of their life in one type of water, either fresh or saline, and migrate to the other type to spawn.

"FW1" means those fresh waters, as designated in N.J.A.C. 7:9B-1.15(h) Table 6, that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s).

"FW2" means the general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.

"Important species" means species that are commercially valuable (for example, within the top 10 species landed, by dollar value); recreationally valuable; threatened or endangered; critical to the organization and/or maintenance of the ecosystem; or other species necessary in the food web for the well-being of the species identified in this definition.

"Measurable changes" means changes measured or determined by a biological, chemical, physical, or analytical method, conducted in accordance with USEPA approved methods as identified in 40 C.F.R. 136 or other analytical methods (for example, mathematical models, ecological indices) approved by the Department, that might adversely impact a water use (including, but not limited to, aesthetics).

"Natural water quality" means the water quality that would exist in a waterway or a waterbody without the addition of water or waterborne substances from artificial origin.

"Outstanding National Resource Waters" means high quality waters that constitute an outstanding national resource (for example, waters of National/State Parks and Wildlife Refuges and waters of exceptional recreational or ecological significance) as designated in N.J.A.C. 7:9B-1.15(i).

"SC" means the general surface water classification applied to coastal saline waters.

"SE" means the general surface water classification applied to saline waters of estuaries.

"Trout maintenance waters" means waters designated at N.J.A.C. 7:9B-1.15(b) through (g) for the support of trout throughout the year.

"Trout production waters" means waters designated at N.J.A.C. 7:9B-1.15(b) through (g) for use by trout for spawning or nursery purposes during their first summer.

7:9B-1.5 Statements of policy

(a) General policies are as follows:
   2. Water is vital to life and comprises an invaluable natural resource which is not to be abused by any segment of the State's population or economy. It is the policy of the State to restore, maintain and enhance the chemical, physical and biological integrity of its waters, to protect the public health, to safeguard the aquatic biota, protect scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, agricultural and other reasonable uses of the State's waters.
   3. Toxic substances in waters of the State shall not be at levels that are toxic to humans or the aquatic biota, or that bioaccumulate in the aquatic biota so as to render them unfit for human consumption.

(f) Bioassay and biomonitoring policies are as follows:
   1. Bioassay test species selection criteria follow:
      i. The objective of the Department is to use test species for toxicity testing bioassays that are representative of the more sensitive aquatic biota from the different trophic levels of the waters in question.
      ii. Test species need not be indigenous to, nor occur in the waters in question.
      iii. When the bioassay test protocol being utilized falls under the scope of N.J.A.C. 7:18 the Department shall designate the approved representative species considered to be the most sensitive to the discharge.

   2. Acute definitive bioassay tests, in accordance with N.J.A.C. 7:18, will normally be utilized in determining the toxicity of a discharge to the aquatic biota.
   3. The Department, in order to further characterize the toxicity of a discharge, may allow or require the use of other procedures including, but not limited to:
      iii. Measures of the structure and function of the aquatic community in the receiving waters.

7:9B-1.12 Designated uses of FW1, PL, FW2, SE1, SE2, SE3, and SC waters

(a) In all FW1 waters the designated uses are:
   1. Set aside for posterity to represent the natural aquatic environment and its associated biota;
   3. Maintenance, migration and propagation of the natural and established aquatic biota...

(b) In all PL waters the designated uses are:
   2. Maintenance, migration and propagation of the natural and established biota indigenous to this unique ecological system;...

(c) In all FW2 waters the designated uses are:
   1. Maintenance, migration and propagation of the natural and established biota...

(d) In all SE1 waters the designated uses are:
   2. Maintenance, migration and propagation of the natural and established biota....

(e) In all SE2 waters the designated uses are:
1. Maintenance, migration and propagation of the natural and established biota;
2. Migration of diadromous fish;
3. Maintenance of wildlife;...

(f) In all SE3 waters the designated uses are:
2. Maintenance and migration of fish populations;
3. Migration of diadromous fish;
4. Maintenance of wildlife;...

(g) In all SC waters the designated uses are:
1. Maintenance, migration and propagation of the natural and established biota;...

New Mexico

SOURCE: State of New Mexico Standards For Interstate And Intrastate Surface Waters, Title 20 Environmental Protection, Chapter 6 Water Quality, Standards For Interstate And Intrastate Surface Waters (20.6.4.12 New Mexico Administrative Code), New Mexico Water Quality Control Commission, December 16, 2001: http://www.nmenv.state.nm.us/NMED_regs/swqb/20_6_4_nmac.html#12 and http://www.nmenv.state.nm.us

20.6.4.7 DEFINITIONS:

I. "Coldwater fishery" means a surface water of the State where the water temperature and other characteristics are suitable for the support or propagation or both of coldwater fishes.

U. "High quality coldwater fishery" means a perennial surface water of the State in a minimally disturbed condition which has considerable aesthetic value and is a superior coldwater fishery habitat. A surface water of the State to be so categorized must have water quality, stream bed characteristics, and other attributes of habitat sufficient to protect and maintain a propagating coldwater fishery.

BB. "Limited warmwater fishery" means a surface water of the State where intermittent flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a surface water of the State where historical data indicate that water temperature may routinely exceed 32.2˚C (90˚F).

DD. "Marginal coldwater fishery" means a surface water of the State known to support a coldwater fish population during at least some portion of the year, even though historical data indicate that the maximum temperature in the surface water of the State may exceed 20˚C (68˚F).

XX. "Warmwater fishery" means a surface water of the State where the water temperature and other characteristics are suitable for the support or propagation or both of warmwater fishes.

CCC. "Wetlands" means those areas which are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soft conditions in New Mexico. Constructed wetlands used for wastewater treatment purposes are not included in this definition.

DDD. "Wildlife habitat" means a surface water of the State used by plants and animals not considered as pathogens, vectors for pathogens or intermediate hosts for pathogens for humans or domesticated livestock and plants.

20.6.4.12. GENERAL STANDARDS.

A. Bottom Deposits: Surface waters of the State shall be free of water contaminants from other than natural causes that will settle and damage or impair the normal growth, function, or reproduction of aquatic life

or significantly alter the physical or chemical properties of the bottom.

20.6.4.14. USE ATTAINABILITY ANALYSIS.

D. Physical, chemical and biological evaluations of surface waters of the State other than lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the "Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses," ...

E. Physical, chemical and biological evaluations of lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the "Technical Support Manual' Waterbody Surveys and Assessments for Conducting Use Attainability Analyses, Volume III: Lake Systems,"...

F. A use attainability analysis or equivalent study should include any applicable information concerning the following:
   5. A physical and biological evaluation of the surface water of the State to be reviewed to identify any factors unrelated to water quality which impair attainment of designated uses and to determine which designated uses are feasible to attain in such surface water of the State given existing physical limitations,
   7. An evaluation of the aquatic and terrestrial biota utilizing the surface water of the State to determine resident species and which species could potentially exist in such water if physical and chemical factors impairing a designated use are corrected.

New York

SOURCE: Official Compilation of Codes, Rules, and Regulations of the State of New York, Title 6, Environmental Conservation Rules and Regulations, Chapter X, Division of Water Resources, Part 701, Classifications-Surface Waters and Groundwaters, amended March 1998:
http://www.dec.state.ny.us/website/regs/701.htm

§ 701.2 Class N fresh surface waters.

(a) The best usages of Class N waters are the enjoyment of water in its natural condition and, where compatible, as a source of water for drinking or culinary purposes, bathing, fishing, fish propagation, and recreation.

§ 701.3 Class AA-Special (AA-S) fresh surface waters.

(a) The best usages of Class AA-S waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival.

§ 701.4 Class A-Special (A-S) fresh surface waters.

(a) The best usages of Class A-S waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival.

§ 701.5 Class AA fresh surface waters.

(a) The best usages of Class AA waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival.

§ 701.6 Class A fresh surface waters.

(a) The best usages of Class A waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival.

§ 701.7 Class B fresh surface waters.

The best usages of Class B waters are primary and secondary contact recreation and fishing. These waters

shall be suitable for fish propagation and survival.

§ 701.8 Class C fresh surface waters.
The best usage of Class C waters is fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

§ 701.9 Class D fresh surface waters.
The best usage of Class D waters is fishing. Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery, or stream bed conditions, the waters will not support fish propagation. These waters shall be suitable for fish survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

North Carolina

SOURCE: North Carolina Administrative Code, Title 15A Environment and Natural Resources, Subchapter 2B Surface Water Standards: Monitoring, January 1, 2002:
http://h2o.enr.state.nc.us/admin/rules/rb010102.pdf and www.esb.enr.state.nc.us

15A NCAC 02B .0101 General Procedures
(e) The following are supplemental classifications:
(1) Trout waters (Tr): freshwaters protected for natural trout propagation and survival of stocked trout.
(2) Swamp waters (Sw): waters which have low velocities and other natural characteristics which are different from adjacent streams.
(4) Outstanding Resource Waters (ORW): unique and special waters of exceptional state or national recreational or ecological significance which require special protection to maintain existing uses.
(5) High Quality Waters (HQW): waters which are rated as excellent based on biological and physical/chemical characteristics through Division monitoring or special studies, native and special native trout waters (and their tributaries) designated by the Wildlife Resources Commission, primary nursery areas (PNA) designated by the Marine Fisheries Commission and other functional nursery areas designated by the Marine Fisheries Commission, all water supply watersheds which are either classified as WS-I or WS-II or those for which a formal petition for reclassification as WS-I or WS-II has been received from the appropriate local government and accepted by the Division of Water Quality and all Class SA waters.
(7) Unique wetland (UWL): wetlands of exceptional state or national ecological significance which require special protection to maintain existing uses. These wetlands may include wetlands that have been documented to the satisfaction of the Commission as habitat essential for the conservation of state or federally listed threatened or endangered species.

15A NCAC 02B.0202 Definitions

(11) Biological integrity means the ability of an aquatic ecosystem to support and maintain a balanced and indigenous community of organisms having species composition, diversity, population densities and functional organization similar to that of reference conditions.

15A NCAC 02B .0211 Fresh Surface Water Quality Standards for Class C Waters
(1) Best Usage of Waters. Aquatic life propagation and maintenance of biological integrity (including fishing, and fish), wildlife, secondary recreation, agriculture and any other usage except for primary recreation or as a source of water supply for drinking, culinary or food processing purposes;
(2) Conditions Related to Best Usage. The waters shall be suitable for aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation, and agriculture; sources of water pollution which preclude any of these uses on either a short-term or long-term basis shall be considered to be violating a water quality standard;

15A NCAC 02B .0212, .0214-.0216, .0218-.0219 Fresh Surface Water Quality Standards for Class WS-I

-WS-V and Class B Waters
...Water quality standards applicable to Class C waters as described in Rule .0211 of this Section also apply to Class WS-I waters [and other uses as assigned for each class].

15A NCAC 02B .0220 TIDAL SALT WATER QUALITY STANDARDS FOR CLASS SC WATERS
General. The water quality standards for all tidal salt waters are the basic standards applicable to Class SC waters. Additional and more stringent standards applicable to other specific tidal salt water classifications are specified in Rules .0221 and .0222 of this Section.

(1) Best Usage of Waters. Aquatic life propagation and maintenance of biological integrity (including fishing, fish and functioning PNAs [Primary Nursery Areas]), wildlife, secondary recreation, and any other usage except primary recreation or shellfishing for market purposes.
(2) Conditions Related to Best Usage. The waters shall be suitable for aquatic life propagation and maintenance of biological integrity, wildlife, and secondary recreation; Any source of water pollution which precludes any of these uses, including their functioning as PNAs, on either a short-term or a long-term basis shall be considered to be violating a water quality standard.

15A NCAC 02B .0221 Tidal Salt Water Quality Standards for Class SA Waters
The following water quality standards apply to surface waters that are used for shellfishing for market purposes and are classified SA. Water quality standards applicable to Class SC waters as described in Rule .0220 of this Section also apply to Class SA waters.

(1) Best Usage of Waters. Shellfishing for market purposes and any other usage specified by the "SB" or "SC" classification...

15A NCAC 02B .0222 Tidal Salt Water Quality Standards for Class SB Waters
The following water quality standards apply to surface waters that are used for primary recreation, including frequent or organized swimming, and are classified SB. Water quality standards applicable to Class SC waters [as] described in Rule .0220 of this Section also apply to SB waters...

15A NCAC 02B .0225 Outstanding Resource Waters
(a) General In addition to the existing classifications, the Commission may classify unique and special surface waters of the state as outstanding resource waters (ORW) upon finding that such waters are of exceptional state or national recreational or ecological significance and that the waters have exceptional water quality while meeting the following conditions:
(1) that the water quality is rated as excellent based on physical, chemical or biological information...
(b) Outstanding Resource Values. In order to be classified as ORW, a water body must exhibit one or more of the following values or uses to demonstrate it is of exceptional state or national recreational or ecological significance:
(1) there are outstanding fish (or commercially important aquatic species) habitat and fisheries;
(5) the waters are of special ecological or scientific significance such as habitat for rare or endangered species or as areas for research and education.

North Dakota

SOURCE: Standards of Water Quality for State of North Dakota, Rule 33-16-02, North Dakota State Department of Health and Consolidated Laboratories, June 1, 2001:
http://www.epa.gov/ost/standards/wqslibrary/

33-16-02-08. General water quality standards.
2. **Narrative Biological Goal**
a. Goal. The biological condition of surface waters shall be similar to that of sites or waterbodies determined by the department to be regional reference sites.
b. Definitions:
(1) “Assemblage” means an association of aquatic organisms of similar taxonomic classification living in the same area. Examples of assemblages include, but are not limited to, fish, macroinvertebrates, algae, and vascular plants.
(2) “Aquatic organism”means any plant or animal which lives at least part of its life cycle in water.

(3) "Biological condition" means the taxonomic composition, richness, and functional organization of an assemblage of aquatic organisms at a site or within a water body.
(4) "Functional organization" means the number of species or abundance of organisms within an assemblage which perform the same or similar ecological functions.
(5) "Metric" means an expression of biological community composition, richness, or function which displays a predictable, measurable change in value along a gradient of pollution or other anthropogenic disturbance.
(6) "Regional reference sites" are sites or water bodies which are determined by the department to be representative of sites or water bodies of similar type (e.g., hydrology and ecoregion) and are least impaired with respect to habitat, water quality, watershed land use, and riparian and biological condition.
(7) "Richness" means the absolute number of taxa in an assemblage at a site or within a water body.
(8) "Taxonomic composition" means the identity and abundance of species or taxonomic groupings within an assemblage at a site or within a water body.

c. Implementation. The intent of the state in adopting a narrative biological goal is solely to provide an additional assessment method that can be used to identify impaired surface waters. Regulatory or enforcement actions based solely on a narrative biological goal, such as the development and enforcement of North Dakota pollutant discharge elimination system permit limits, are not authorized. However, adequate and representative biological assessment information may be used in combination with other information to assist in determining whether designated uses are attained and to assist in determining whether new or revised chemical-specific permit limitations may be needed. Implementation will be based on the comparison of current biological conditions at a particular site to the biological conditions deemed attainable based on regional reference sites. In implementing a narrative biological goal, biological condition may be expressed through an index composed of multiple metrics or through appropriate statistical procedures.

33-20-02-09. Surface water classifications, mixing zones, and numeric standards.

1. **Classifications**...

a. Class I streams. The quality of the waters in this class shall be suitable for the propagation and/or protection of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.
b. Class IA streams. The quality of the waters in this class shall be the same as the quality of class I streams, except that treatment for municipal use may also require softening to meet the requirements of the department.
c. Class II streams. The quality of the waters in this class shall be the same as the quality of class I streams, except that additional treatment may be required to meet the drinking water requirements of the department. Streams in this classification may be intermittent in nature which would make these waters of limited value for beneficial uses such as municipal water, fish life, or irrigation.
d. Class III streams. The quality of the waters in this class shall be suitable for agricultural and industrial uses such as stock watering, irrigation, washing, and cooling. These streams have low average flows and, generally, prolonged periods of no flow. They are of limited seasonal value for immersion recreation, fish life, and aquatic biota. The quality of these waters must be maintained to protect recreation, fish, and aquatic biota.

Ohio

SOURCE: Ohio Administrative Code, Chapter 3745-1-07 Water use designations and statewide criteria, February 22, 2002: http://www.epa.state.oh.us/dsw/rules/01-07.pdf

(A) Water quality standards contain two distinct elements: designated uses; and numerical or narrative criteria designed to protect and measure attainment of the uses.
(1) Each water body in the state is assigned one or more aquatic life habitat use designations. Each

water body may be assigned one or more water supply use designations and/or one recreational use designation. These use designations are defined in paragraph (B) of this rule. Water bodies are assigned use designations in rules 3745-1-08 to 3745-1-32 of the Administrative Code. In addition, a water body may be assigned designations as described in the antidegradation rule (rule 3745-1-05 of the Administrative Code).

(6) Biological criteria presented in table 7-14 of this rule provide a direct measure of attainment of the warmwater habitat, exceptional warmwater habitat and modified warmwater habitat aquatic life uses. Biological criteria and the exceptions to chemical-specific or whole-effluent criteria allowed by this paragraph do not apply to any other use designations.

(a) Demonstrated attainment of the applicable biological criteria in a water body will take precedence over the application of selected chemical-specific aquatic life or whole-effluent criteria associated with these uses when the director, upon considering appropriately detailed chemical, physical and biological data, finds that one or more chemical-specific or whole-effluent criteria are inappropriate. In such cases the options which exist include:

(i) The director may develop, or a discharger may provide for the director's approval, a justification for a site-specific water quality criterion according to methods described in "Water Quality Standards Handbook, 1983, U.S. EPA Office of Water";

(ii) The director may proceed with establishing water quality based effluent limits consistent with attainment of the designated use.

(b) Demonstrated nonattainment of the applicable biological criteria in a water body with concomitant evidence that the associated chemical-specific aquatic life criteria and whole-effluent criteria are met will cause the director to seek and establish, if possible, the cause of the nonattainment of the designated use. The director shall evaluate the existing designated use and, where not attainable, propose to change the designated use. Where the designated use is attainable and the cause of the nonattainment has been established, the director shall, wherever necessary and appropriate, implement regulatory controls or make other recommendations regarding water resource management to restore the designated use...

(B) Use designations are defined as follows:

(1) Aquatic life habitat

(a) "Warmwater" - these are waters capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the twenty-fifth percentile of the identified reference sites within each of the following ecoregions: the interior plateau ecoregion, the Erie/Ontario lake plains ecoregion, the western Allegheny plateau ecoregion and the eastern corn belt plains ecoregion. For the Huron/Erie lake plains ecoregion, the comparable species composition, diversity and functional organization are based upon the ninetieth percentile of all sites within the ecoregion. For all ecoregions, the attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all upground storage reservoirs are designated warmwater habitats. Attainment of this use designation (except for upground storage reservoirs) is based on the criteria in table 7-14 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(b) "Limited warmwater" - these are waters that were temporarily designated in the 1978 water quality standards as not meeting specific warmwater habitat criteria. Criteria for the support of this use designation are the same as the criteria for the support of the use designation warmwater habitat. However, individual criteria are varied on a case-by-case basis and supersede the criteria for warmwater habitat where applicable. Any exceptions from warmwater habitat criteria apply only to specific criteria during specified time periods and/or flow conditions. The adjusted criteria and conditions for specified stream segments are denoted as comments in rules 3745-1-08 to 3745-1-30 of the Administrative Code. Stream segments currently designated limited warmwater habitats will undergo use attainability analyses and will be redesignated other aquatic life habitats. No additional stream segments will be designated

limited warmwater habitats.

(c) "Exceptional warmwater" - these are waters capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the seventy-fifth percentile of the identified reference sites on a statewide basis. The attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all lakes and reservoirs, except upground storage reservoirs, are designated exceptional warmwater habitats. Attainment of this use designation (except for lakes and reservoirs) is based on the criteria in table 7-14 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(d) "Modified warmwater" - these are waters that have been the subject of a use attainability analysis and have been found to be incapable of supporting and maintaining a balanced, integrated, adaptive community of warmwater organisms due to irretrievable modifications of the physical habitat. Such modifications are of a long-lasting duration (i.e., twenty years or longer) and may include the following examples: extensive stream channel modification activities permitted under sections 401 and 404 of the act or Chapter 6131. of the Revised Code, extensive sedimentation resulting from abandoned mine land runoff, and extensive permanent impoundment of free-flowing water bodies. The attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. Attainment of this use designation is based on the criteria in table 7-14 of this rule. Each water body designated modified warmwater habitat will be listed in the appropriate use designation rule (rules 3745-1-08 to 3745-1-32 of the Administrative Code) and will be identified by ecoregion and type of physical habitat modification as listed in table 7-14 of this rule. The modified warmwater habitat designation can be applied only to those waters that do not attain the warmwater habitat biological criteria in table 7-14 of this rule because of irretrievable modifications of the physical habitat. All water body segments designated modified warmwater habitat will be reviewed on a triennial basis (or sooner) to determine whether the use designation should be changed. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(e) "Seasonal salmonid" - these are rivers, streams and embayments capable of supporting the passage of salmonids from October to May and are water bodies large enough to support recreational fishing. This use will be in effect the months of October to May. Another aquatic life habitat use designation will be enforced the remainder of the year (June to September). A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(f) "Coldwater" - these are waters that meet one or both of the characteristics described in paragraphs (B)(1)(f)(i) and (B)(1)(f)(ii) of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(i) "Coldwater habitat, inland trout streams" -these are waters which support trout stocking and management under the auspices of the Ohio department of natural resources, division of wildlife, excluding waters in lake run stocking programs, lake or reservoir stocking programs, experimental or trial stocking programs, and put and take programs on waters without, or without the potential restoration of, natural coldwater attributes of temperature and flow. The director shall designate these waters in consultation with the director of the Ohio department of natural resources.

(ii) "Coldwater habitat, native fauna" - these are waters capable of supporting populations of native coldwater fish and associated vertebrate and invertebrate organisms and plants on

an annual basis. The director shall designate these waters based upon results of use attainability analyses.

(g) "Limited resource water" - these are waters that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any other aquatic life habitat as determined by the biological criteria in table 7-14 of this rule. The use attainability analysis must demonstrate that the extant fauna is substantially degraded and that the potential for recovery of the fauna to the level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human-induced conditions. All water body segments designated limited resource water will be reviewed on a triennial basis (or sooner) to determine whether the use designation should be changed. Limited resource waters are also termed nuisance prevention for some water bodies designated in rules 3745-1-08 to 3745-1-30 of the Administrative Code. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code. Waters designated limited resource water will be assigned one or more of the following causative factors. These causative factors will be listed as comments in rules 3745-1-08 to 3745-1-30 of the Administrative Code.

(i) "Acid mine drainage" - these are surface waters with sustained pH values below 4.1 s.u. or with intermittently acidic conditions combined with severe streambed siltation, and have a demonstrated biological performance below that of the modified warmwater habitat biological criteria.

(ii) "Small drainageway maintenance" - these are highly modified surface water drainageways (usually less than three square miles in drainage area) that do not possess the stream morphology and habitat characteristics necessary to support any other aquatic life habitat use. The potential for habitat improvements must be precluded due to regular stream channel maintenance required for drainage purposes.

(iii) Other specified conditions.

(2) Nuisance prevention This use designation is being replaced by the limited resource water use designation described in paragraph (A)(1)(g) of this rule. All water body segments currently designated nuisance prevention in rules 3745-1-08 to 3745-1-30 of the Administrative Code must meet the limited resource water criteria in this rule. All references to the nuisance prevention use designation in rules 3745-1-08 to 3745-1-30 of the Administrative Code will be phased out over time and replaced with limited resource water.

(3) Water supply

(a) "Public" - these are waters that, with conventional treatment, will be suitable for human intake and meet federal regulations for drinking water. Criteria associated with this use designation apply within five hundred yards of surface water intakes. Although not necessarily included in rules 3745-1-08 to 3745-1-30 of the Administrative Code, the bodies of water with one or more of the following characteristics are designated public water supply: (i) All publicly owned lakes and reservoirs, with the exception of Piedmont reservoir;
(ii) All privately owned lakes and reservoirs used as a source of public drinking water; (iii) All surface waters within five hundred yards of an existing public water supply surface water intake;
(iv) All surface waters used as emergency water supplies.

(b) "Agricultural" - these are waters suitable for irrigation and livestock watering without treatment.

(c) "Industrial" - these are waters suitable for commercial and industrial uses, with or without treatment. Criteria for the support of the industrial water supply use designation will vary with the type of industry involved.

(4) Recreation. These use designations are in effect only during the recreation season, which is the period from May first to October fifteenth, for all water bodies except those designated seasonal salmonid habitat. The recreation season for streams designated seasonal salmonid habitat is June first to September thirtieth.

(a) "Bathing waters" - these are waters that, during the recreation season are suitable for swimming where a lifeguard and/or bathhouse facilities are present, and include any additional such areas where the water quality is approved by the director. Water bodies assigned the bathing waters use designation are not necessarily indicated in rules 3745-1-08 to 3745-1-30 of the

Administrative Code but include local areas of those water bodies meeting this definition.

(b) "Primary contact" - these are waters that, during the recreation season, are suitable for full-body contact recreation such as, but not limited to, swimming, canoeing, and scuba diving with minimal threat to public health as a result of water quality. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all lakes and reservoirs, except upground storage reservoirs and those lakes and reservoirs meeting the definition of bathing waters, are designated primary contact recreation.

(c) "Secondary contact" - these are waters that, during the recreation season, are suitable for partial body contact recreation such as, but not limited to, wading with minimal threat to public health as a result of water quality.

(C) Protection of aquatic life - whole-effluent approach. Whole-effluent toxicity levels shall be applied in accordance with rules 3745-2-09 and 3745-33-07 of the Administrative Code.

Table 7-14

Biological criteria for warmwater, exceptional warmwater and modified warmwater habitats. Description and derivation of indices and ecoregions are contained in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters" cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. These criteria do not apply to the Ohio river, lakes or Lake Erie river mouths

Index	Modified Warmwater Habitat				
Sampling Site Ecoregion[1]	Channel Modif.	Mine Affected	Impounded	Warmwater Habitat	Exceptional Warmwater Habitat
(A) Index of biotic integrity (fish)					
(1) Wading sites*					
HELP	22	–	–	32	50
IP	24	–	–	40	50
EOLP	24	–	–	38	50
WAP	24	24	–	44	50
ECBP	24	–	–	40	50
(2) Boat sites[2]					
HELP	20	–	22	34	48
IP	24	–	30	38	48
EOLP	24	–	30	40	48
WAP	24	24	30	40	48
ECBP	24	–	30	42	48
(3) Headwater sites**					

* Sampling methods descriptions are found in the "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices," cited in paragraph (B) of rule 3745-1-03 of the Administrative Code.

** Modification of the IBI that applies to sites with drainage areas less than twenty square miles.

Index	Modified Warmwater Habitat				
Sampling Site Ecoregion[1]	Channel Modif.	Mine Affected	Impounded	Warmwater Habitat	Exceptional Warmwater Habitat
HELP	20	–	–	28	50
IP	24	–	–	40	50
EOLP	24	–	–	40	50
WAP	24	24	–	44	50
ECBP	24	–	–	40	50
(B) Modified index of well-being (fish)***					
(1) Wading sites[2]					
HELP	5.6	—	—	7.3	9.4
IP	6.2	—	—	8.1	9.4
EOLP	6.2	—	—	7.9	9.4
WAP	6.2	5.5	—	8.4	9.4
ECBP	6.2	—	—	8.3	9.4
(2) Boat sites[2]					
HELP	5.7	—	5.7	8.6	9.6
IP	5.8	—	6.6	8.7	9.6
EOLP	5.8	—	6.6	8.7	9.6
WAP	5.8	5.4	6.6	8.6	9.6
ECBP	5.8	—	6.6	8.5	9.6
(C) Invertebrate community index (macroinvertebrates)					
(1) Artificial substrate samplers[2]					
HELP	22	–	–	34	46
IP	22	–	–	30	46
EOLP	22	–	–	34	46
WAP	22	30	–	36	46
ECBP	22	–	–	36	46

Oklahoma

*** Does not apply to sites with drainage areas less than twenty square miles.

SOURCE: Oklahoma Administrative Code, Title 785, Oklahoma Water Resources Board Rules, Chapter 45 Oklahoma Water Quality Standards, August 13, 2001:
http://www.oklaosf.state.ok.us/~owrb/rules/Chap45.pdf,
http://www.oklaosf.state.ok.us/~owrb/rules/Chap46.pdf and www.state.ok.us/~owrb

785:45-1-2. Definitions

"Benthic macroinvertebrates" means invertebrate animals that are large enough to be seen by the unaided eye, can be retained by a U. S. Standard No. 30 sieve, and live at least part of their life cycles within or upon available substrate in a body of water or water transport system.

"Intolerant climax fish community" means habitat and water quality adequate to support game fishes or other sensitive species introduced or native to the biotic province or ecological region, which require specific or narrow ranges of high quality environmental conditions.

"Sensitive representative species" means Ceriodaphnia dubia, Daphnia magna, Daphnia pulex, Pimphales promelas (Fathead minnow), Lepomis macrochirus (Bluegill sunfish), or other sensitive organisms indigenous to a particular waterbody.

"Warm Water Aquatic Community" means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support intolerant climax fish communities and includes an environment suitable for the full range of warm water benthos.

"Water quality" means physical, chemical, and biological characteristics of water which determine diversity, stability, and productivity of the climax biotic community or affect human health.

785:45-5-12. Fish and wildlife propagation

(b) Habitat Limited Aquatic Community subcategory.
  (1) Habitat limited aquatic community means a subcategory of the beneficial use "Fish and Wildlife Propagation" where the water chemistry and habitat are not adequate to support a "Warm Water Aquatic Community" because:
    (A) Naturally occurring water chemistry prevents the attainment of the use; or
    (B) Naturally occurring ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of a sufficient volume of effluent to enable uses to be met; or
    (C) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
    (D) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or
    (E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of the "Warm Water Aquatic Community" beneficial use.
  (2) Habitat Limited Aquatic Community may also be designated where controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended, which would be necessary to meet standards or criteria associated with the beneficial use subcategories of Cool Water Aquatic Community or Warm Water Aquatic Community, would result in substantial and widespread economic and social impact.

(c) Warm Water Aquatic Community subcategory. Warm Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support climax fish communities.

(d) Cool Water Aquatic Community subcategory. Cool Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support cool water climax fish communities and includes an environment suitable for the full range of cool water benthos. Typical species may include smallmouth bass, certain

darters and stoneflies.

(e) Trout Fishery subcategory. Trout Fishery (Put and Take) means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support a seasonal put and take trout fishery. Typical species may include trout.

(f) Criteria used in protection of fish and wildlife propagation. The narrative and numerical criteria to maintain and protect the use of "Fish and Wildlife Propagation" and its subcategories shall include...
(5) Biological Criteria.
(A) Aquatic life in all waterbodies designated Fish and Wildlife Propagation (excluding waters designated "Trout, put-and-take") shall not exhibit degraded conditions as indicated by one or both of the following:
(i) comparative regional reference data from a station of reasonably similar watershed size or flow, habitat type and Fish and Wildlife beneficial use subcategory designation or
(ii) by comparison with historical data from the waterbody being evaluated.
(B) Compliance with the requirements of 785:45-5-12(f)(5) shall be based upon measures including, but not limited to, diversity, similarity, community structure, species tolerance, trophic structure, dominant species, indices of biotic integrity (IBI's), indices of well being (IWB's), or other measures.

785:46-15-5. Assessment of Fish and Wildlife Propagation support

(e) **Biological criteria.**
(1) If data demonstrate that an assemblage of fish or macro invertebrates from a waterbody is significantly degraded, according to 785:45-5-12(f)(5), from that expected for thesubcategory of Fish and Wildlife Propagation designated in OAC 785:45 for that waterbody, then that subcategory may be deemed by the appropriate state environmental agency to be not supported.
(2) All physical assessments and biological collections shall be performed in accordance with the requirements set forth in OWRB Technical Report No. 99-3 entitled "Standard Operating Procedures for Stream Assessments and Biological Collections Related to Biological Criteria in Oklahoma".
(3) Evaluation of the biological collections shall include identification of fish samples to species level.
(4) The determination of whether the use of Fish and Wildlife Propagation is supported in wadeable streams in Oklahoma ecoregions shall be made according to all of the requirements of this subsection (e), the application of Appendix C of this Chapter, and the special provisions in subsections (g) through (i), where applicable, of this Section. Streams with undetermined use support status shall be subject to additional investigation that considers stream order, habitat factors and local reference streams before the use support determination is made.

(f) **Turbidity.** The criteria for turbidity stated in 785:45-5-12(f)(7) shall constitute the screening levels for turbidity. The tests for use support shall follow the default protocol in 785:46-15-4(b).

(g) **Special provisions for Ouachita Mountains wadeable streams**. The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Ouachita Mountains ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:
(1) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 24 or less. If a score is 25 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
(2)Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 27 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 18 or less. If a score is 19 to 26 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(h) **Special provisions for Arkansas Valley wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Arkansas Valley ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:

(1) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 24 or less. If a score is 25 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
(2) Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 27 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 18 or less. If a score is 19 to 26 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(i) **Special provisions for Boston Mountains and Ozark Highlands wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Boston Mountains and Ozark Highlands ecoregions shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:
(1) Where designated, the subcategory of Cool Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 37 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 29 or less. If a score is 30 to 36 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
(2) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 31 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 22 or less. If a score is 23 to 30 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

(j) **Special provisions for Central Irregular Plains wadeable streams.** The determination of whether the use of Fish and Wildlife Propagation is supported for wadeable streams located in the Central Irregular Plains ecoregion shall be made according to the application of Appendix C of this Chapter, together with this subsection, as follows:
(1) Where designated, the subcategory of Cool Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 35 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 28 or less. If a score is 29 to 34 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
(2) Where designated, the subcategory of Warm Water Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 30 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 22 or less. If a score is 23 to 29 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.
3) Where designated, the subcategory of Habitat Limited Aquatic Community shall be deemed fully supported if the application of Appendix C produces a score of 25 or more. Such subcategory shall be deemed not supported if the application of Appendix C produces a score of 16 or less. If a score is 17 to 24 inclusive, the issue of whether this subcategory is supported shall be deemed undetermined.

SOURCE: Added at 17 Ok Reg 1775, effective 7/1/2000; Amended at 18 Ok Reg 3379, effective 8/13/2001; Amended at 19 Ok Reg 2524-2526, eff 7/1/2002

APPENDIX C. INDEX OF BIOLOGICAL INTEGRITY

		5	3	1	SCORE
Sample Composition	Total no. of species	See figure 1*	2.49 -1.50	<1.50	
	Shannon diversity** based upon numbers	>2.50	2 - 3	<2	
	No. of sunfish species	>3	4 - 3	<3	
	No. of species comprising 75% of sample	>5	3 - 5	<3	

	No. of intolerant species <100mi2 area >100mi2 area	>5			
	Percentage of tolerant species	See figure 3*			
Fish Condition	Percentage of lithophils	>36	18 - 36	<18	
	Percentage of DELT anomalies***	<0.1	0.1 -1.3	>1.3	
	Fish numbers (total individuals)	>200	200 - 75	<75	

**Figure 2. Number of Intolerant Species* and *Figure 3. Percent Tolerant Species*, (Unofficial) Oklahoma Administrative Code, Title 785, Oklahoma Water Resources Board Rules, Chapter 46. Implementation of Oklahoma Water Quality Standards, p. 47, 48.

$$**d = - \sum \frac{n_i}{N} In \frac{n_i}{N}$$

***DELT = deformities, eroded fins, lesions, tumors

Oregon

SOURCE: Oregon Administrative Rules: Chapter 340 Department of Environmental Quality, Water Pollution, Division 41 State-Wide Water Quality Management Plan; Beneficial Uses, Policies, Standards, and Treatment Criteria for Oregon, amended February 15, 2001:
http://arcweb.sos.state.or.us/rules/OARS_300/OAR_340/340_041.html and
http://www.deq.state.or.us/lab/biomon/bio-rpt.htm

340-04I-0006 Definitions

(32) "Aquatic Species" means any plants or animals which live at least part of their life cycle in waters of the State.

(33) "Biological Criteria" means numerical values or narrative expressions that describe the biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use.

(35) "Indigenous" means supported in a reach of water or known to have been supported according to historical records compiled by State and Federal agencies or published scientific literature.

(36) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin, or water body are met. This shall be established by accepted biomonitoring techniques.

(37) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

(38) "Ecological Integrity" means the summation of chemical, physical and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

(39) "Appropriate Reference Site or Region" means a site on the same water body, or within the same basin or ecoregion that has similar habitat conditions, and represents the water quality and biological

community attainable within the areas of concern.

(40) "Critical Habitat" means those areas which support rare, threatened or endangered species, or serve as sensitive spawning and rearing areas for aquatic life.

(41) "High Quality Waters" means those waters which meet or exceed those levels that are necessary to support the propagation of fish, shellfish, and wildlife and recreation in and on the water, and other designated beneficial uses.

(42) "Outstanding Resource Waters" means those waters designated by the Environmental Quality Commission where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values, or where special water quality protection is needed to maintain critical habitat areas.

(51) "Cold-Water Aquatic Life" -- The aquatic communities that are physiologically restricted to cold water, composed of one or more species sensitive to reduced oxygen levels. Including but not limited to Salmonidae and cold-water invertebrates.

(52) "Cool-Water Aquatic Life" -- The aquatic communities that are physiologically restricted to cool waters, composed of one or more species having dissolved oxygen requirements believed similar to the cold-water communities. Including but not limited to Cottidae, Osmeridae, Acipenseridae, and sensitive Centrarchidae such as the small-mouth bass.

(53) "Warm-Water Aquatic Life" -- The aquatic communities that are adapted to warm-water conditions and do not contain either cold- or cool-water species.

(57) "Ecologically Significant Cold-Water Refuge" exists when all or a portion of a waterbody supports stenotypic cold-water species (flora or fauna) not otherwise widely supported within the subbasin, and either:
(a) Maintains cold-water temperatures throughout the year relative to other segments in the subbasin, providing summertime cold-water holding or rearing habitat that is limited in supply, or;
(b) Supplies cold water to a receiving stream or downstream reach that supports cold-water biota.

340-041-0027 Biological Criteria
Waters of the state shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

Pennsylvania

SOURCE: Pennsylvania Code Chapter 93, Title 25, § 93.3, 93.4, 93.6. General water quality criteria, amended November 17, 2000: http://www.pacode.com/secure/data/025/chapter93/s93.3.html, http://www.pacode.com/secure/data/025/chapter93/s93.4.html http://www.pacode.com/secure/data/025/chapter93/s93.6.html www.dep.state.pa.us

§ 93.3. Protected water uses.
Water uses which shall be protected, and upon which the development of water quality criteria shall be based, are set forth, accompanied by their identifying symbols, in Table 1:

Table 1

Symbol	Protected Use
Aquatic Life	

Symbol	Protected Use
CWF	Cold Water Fishes—Maintenance or propagation, or both, of fish species including the family Salmonidae and additional flora and fauna which are indigenous to a cold water habitat.
WWF	Warm Water Fishes—Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
MF	Migratory Fishes—Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which ascend to flowing waters to complete their life cycle.
TSF	Trout Stocking—Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.
Water Supply	
AWS	Wildlife Water Supply—Use for waterfowl habitat and for drinking and cleansing by wildlife.
Special Protection	
HQ	High Quality Waters
EV	Exceptional Value Waters

§ 93.4. Statewide water uses.

(a) Statewide water uses. Except when otherwise specified in law or regulation, the uses set forth in Table 2 apply to all surface waters. These uses shall be protected in accordance with this chapter, Chapter 96 (relating to water quality standards implementation) and other applicable State and Federal laws and regulations.

Table 2

Symbol	Protected Use
Aquatic Life	
WWF	Warm Water Fishes
AWS	Wildlife Water Supply

§ 93.6. General water quality criteria.

(a) Water may not contain substances attributable to point or nonpoint source discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life.

Rhode Island

SOURCE: State of Rhode Island And Providence Plantations Department of Environmental Management Water Resources, Water Quality Regulations, Regulation EVM 112-88.97-1, amended June 23, 2000: http://www.epa.gov/waterscience/standards/wqslibrary/ri/ri_1_wqr.pdf, and http://www.state.ri.us/dem/pubs/regs/REGS/WATER/QUALREGS.PDF

Rule 7. - DEFINITIONS

"Outstanding National Resource Waters (ONRW)" means waters of National and State Parks, Wildlife Refuges, and other such waters designated as having special recreational or ecological value.

"Special Resource Protection Waters (SRPW)" means surface waters identified by the Director as having significant recreational or ecological uses, and may include but are not limited to: wildlife refuge or management areas; public drinking water supplies; State and Federal parks; State and Federal designated Estuarine Sanctuary Areas; waterbodies containing critical habitats, including but not limited to waterbodies identified by the RIDEM Natural Heritage Program as critical habitat for rare or endangered species; wetland types or specific wetlands listed as rare, threatened, endangered, of special interest or of special concern by the Rhode Island Natural Heritage Program; waterbodies identified by the U. S. Department of the Interior on the Final List of Rivers for potential inclusion in the National Wild and Scenic Rivers System.

"Undesirable or Nuisance Species" means any plant or animal aquatic species which becomes so numerous due to pollutants or physical or hydrological modifications that it interferes with, or indicates an impairment of, the designated use(s) of a waterbody.

"Use Attainability Analyses" means a structured scientific assessment of the factors affecting the attainment of a use which may include physical, chemical, biological, and economic factors. The physical, chemical and biological factors affecting the attainment of a use shall be evaluated through a waterbody survey and assessment. Waterbody surveys and assessments shall be sufficiently detailed to evaluate at a minimum:

a. current aquatic uses achieved in the waterbody;
b. causes of any impairment of the aquatic uses and why the impairment cannot be rectified; and
c. aquatic uses(s) that can be attained based on the physical, chemical, and biological characteristics of the water body.

Rule 8. - SURFACE WATER QUALITY STANDARDS

B. Water Use Classification
   (1) Freshwater: Class A, Class B, Class B1, and Class C waters are designated... for fish and wildlife habitat...
   (2) Seawater: Class SA, Class SB, Class SB1, and Class SC waters are designated for ... fish and wildlife habitat...

D. Water Quality Criteria - The following physical, chemical and biological criteria are parameters of minimum water quality necessary to support the surface water use classifications of rule 8.B. and shall be applicable to all waters of the State.
   (1) General Criteria - The following minimum criteria are applicable to all waters of the State, unless criteria specified for individual classes are more stringent:
      (a) At a minimum, all waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities subject to these regulations that:
         i. Adversely affect the composition of fish and wildlife;
         ii. Adversely affect the physical, chemical, or biological integrity of the habitat;
         iii. Interfere with the propagation of fish and wildlife;
         iv. Adversely alter the life cycle functions, uses, processes and activities of fish and wildlife;...
      (b) Aesthetics - all waters shall be free from pollutants in concentrations or combinations that:
         iv. Result in the dominance of species of fish and wildlife to such a degree as to create a nuisance or interfere with the existing or designated uses.

South Carolina

SOURCE: South Carolina Regulation 61-68, Water Classification and Standards, September 28, 2001: http://www.lpitr.state.sc.us/coderegs/chap61/61-69.htm, and http://www.scstatehouse.net/coderegs/c061c.htm#61-68

61-68. Water Classifications and Standards

B. DEFINITIONS.

1. Biological assessment means an evaluation of the biological condition of a waterbody using biological surveys and other direct measurements of resident biota in surface waters and sediments.

18. Biological criteria, also known as biocriteria, mean narrative expressions or numeric values of the biological characteristics of aquatic communities based on appropriate reference conditions. Biological criteria serve as an index of aquatic community health.

F. NARRATIVE BIOLOGICAL CRITERIA.

1. Narrative biological criteria are contained in this regulation and are described throughout the sections where applicable. The following are general statements regarding these narrative biological criteria.
   a. Narrative biological criteria in Section A.4. describe the goals of the Department to maintain and improve all surface waters to a level that provides for the survival and propagation of a balanced indigenous aquatic community of fauna and flora. These narrative criteria are determined by the Department based on the condition of the waters of the State by measurements of physical, chemical, and biological characteristics of the waters according to their classified uses.
   b. Section C.10. describes narrative biological criteria relative to surface water mixing zones and specifies requirements necessary for the protection and propagation of a balanced indigenous aquatic community.
   c. Narrative biological criteria shall be consistent with the objective of maintaining and improving all surface waters to a level that provides for the survival and propagation of a balanced indigenous aquatic community of fauna and flora attainable in waters of the State; and in all cases shall protect against degradation of the highest existing or classified uses or biological conditions in compliance with the Antidegradation Rules contained in this regulation. Section D.1.a describes narrative biological criteria relative to activities in Outstanding National Resource Waters, Outstanding Resource Waters and Shellfish Harvesting Waters.
   d. In order to determine the biological quality of the waters of the State, it is necessary that the biological component be assessed by comparison to a reference condition(s) based upon similar hydrologic and watershed characteristics that represent the optimum natural condition for that system. Such reference condition(s) or reaches of waterbodies shall be those observed to support the greatest variety and abundance of aquatic life in the region as is expected to be or would be with a minimal amount of disturbance from anthropogenic sources. Impacts from urbanization and agriculture should be minimal and natural vegetation should dominate the land cover. There should also be an appropriate diversity of substrate. Reference condition(s) shall be determined by consistent sampling and reliable measures of selected indicative communities of flora and fauna as established by the Department and may be used in conjunction with acceptable physical, chemical, and microbial water quality measurements and records judged to be appropriate for this purpose. Narrative biological criteria relative to activities in all waters are described in Section E.
   e. In the Class Descriptions, Designations, and Specific Standards for Surface Waters Section, all water use classifications protect for a balanced indigenous aquatic community of fauna and flora. In addition, Trout Natural and Trout Put, Grow, and Take classifications protect for reproducing trout populations and stocked trout populations, respectively.

Antidegradation Rules.

8. Trout Waters. The State recognizes three types of trout waters: Natural; Put, Grow, and Take; and Put and Take.
   a. Natural (TN) are freshwaters suitable for supporting reproducing trout populations and a cold water balanced indigenous aquatic community of fauna and flora. Also suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses.
   b. Put, Grow, and Take (TPGT) are freshwaters suitable for supporting growth of stocked trout populations and a balanced indigenous aquatic community of fauna and flora. Also suitable for primary and secondary contact recreation and as a source for drinking water supply after

conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses.

c. Put and Take (TPT) are freshwaters suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses. The standards of Freshwaters classification protect these uses.

South Dakota

SOURCE: Administrative Rules of South Dakota, Article 74:51, Surface Water Quality Standards, effective January 27, 1999: http://legis.state.sd.us/rules/rules/7451.htm#74:51:01 and http://www.state.sd.us/denr/denr.html

74:51:01:01. Definitions.

(4) "Aquatic life," an organism dependent on the water environment to either propagate or survive, or both;

(5) "Aquatic community," an association of interacting populations and stages of aquatic life in a given water body or habitat;

(10) "Biological integrity," the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region;

(13) "Coldwater aquatic life," aquatic life including fish of the family Salmonidae, for example, trout and salmon;

(14) "Coldwater marginal fish life propagation," a beneficial use assigned to surface waters of the state which support aquatic life and are suitable for stocked catchable-size coldwater fish during portions of the year, but which, because of critical natural conditions including low flows, siltation, or warm temperatures, are not suitable for a permanent coldwater fish population. Warmwater fish may also be present;

(15) "Coldwater permanent fish life propagation," a beneficial use assigned to surface waters of the state which are capable of supporting aquatic life and are suitable for supporting a permanent population of coldwater fish from natural reproduction or fingerling stocking. Warmwater fish may also be present;

(27) "High-quality fishery waters," surface waters of the state designated for the beneficial use of coldwater permanent fish life propagation, coldwater marginal fish life propagation, or warmwater permanent fish life propagation;

(30) "Impairment," a detrimental effect on the aquatic community caused by an impact that prevents attainment of the designated use;

(57) "Warmwater aquatic life," aquatic life including the Ictaluridae, Centrarchidae, and Cyprinidae families of fish, for example, catfish, sunfish, and minnows, respectively;

(58) "Warmwater marginal fish life propagation," a beneficial use assigned to surface waters of the state which will support aquatic life and more tolerant species of warmwater fish naturally or by frequent stocking and intensive management but which suffer frequent fish kills because of critical natural conditions;

(59) "Warmwater permanent fish life propagation," a beneficial use assigned to surface waters of the state which support aquatic life and are suitable for the permanent propagation or maintenance, or

both, of warmwater fish;

(60) "Warmwater semipermanent fish life propagation waters," a beneficial use assigned to surface waters of the state which support aquatic life and are suitable for the propagation or maintenance, or both, of warmwater fish but which may suffer occasional fish kills because of critical natural conditions;

62) "Wetlands," those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions including swamps, marshes, bogs, and similar areas;

(63) "Fish and wildlife propagation, recreation, and stock watering," a beneficial use classification assigned to all surface waters of the state which may support recreation in and on the water and fish and aquatic life, when sufficient quantities of water are present for sufficient duration to support those uses; provide habitat for aquatic and semi-aquatic wild animals and fowl; provide natural food chain maintenance; and are of suitable quality for watering domestic and wild animals;

74:51:01:12. Biological integrity of waters.
All waters of the state must be free from substances, whether attributable to human-induced point source discharges or nonpoint source activities, in concentrations or combinations which will adversely impact the structure and function of indigenous or intentionally introduced aquatic communities.

Tennessee

SOURCE: Rules of the Tennessee Department of Health and Tennessee Department of Environment and Conservation, Chapter 1200-4-3 General Water Quality Criteria, revised October 1999:
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-03.pdf and www.state.tn.us/environment

1200-4-3-.03 Criteria for Water Uses:
(3) Fish and Aquatic Life.
(j) Biological Integrity - The waters shall not be modified through the addition of pollutants or through physical alteration to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or adversely affected, except as allowed under 1200-4-3-.06. The condition of biological communities will be measured by use of metrices suggested in guidance such as Rapid Bioassessment Protocols for Use in Streams and Rivers (EPA/444/4-89-001) or other scientifically defensible methods. Effects to biological populations will be measured by comparisons to upstream conditions or to appropriately selected reference sites in the same ecoregion.

Texas

SOURCE: Texas Administrative Code, Title 30 Environmental Quality, Part 1, Texas Natural Resource Conservation Commission, Chapter 307, Texas Surface Water Quality Standards, amended effective August 17, 2000:
http://info.sos.state.tx.us:80/pub/plsql/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=307&rl=Y

Rule 307.3 Definitions and Abbreviations
(a) Definitions
(9) Biological integrity--The species composition, diversity, and functional organization of a community of organisms in an environment relatively unaffected by pollution.

(27) Incidental fishery--A level of fishery which applies to water bodies that are not considered to have a sustainable fishery but which have an aquatic life use of limited, intermediate, high, or

exceptional.

(45) Seagrass propagation--A water-quality-related existing use which applies to saltwater with significant stands of submerged seagrass.

(50) Significant aquatic life use--A broad characterization of aquatic life which indicates that a subcategory of aquatic life use (limited, intermediate, high, or exceptional) is applicable. Some aquatic life is expected to be present even in water bodies which are not designated for specific categories of aquatic life use. Some provisions to protect aquatic life applies to any water body in the state whether an aquatic life use is assigned or not.

Rule 307.7 Site-specific Uses and Criteria

(a) Aquatic life. The establishment of numerical criteria for aquatic life is highly dependent on desired use, sensitivities of usual aquatic communities, and local physical and chemical characteristics. Five subcategories of aquatic life use are established. They include limited, intermediate, high, and exceptional aquatic life and oyster waters. Aquatic life use subcategories designated for segments listed in Appendix A of §307.10 of this title recognize the natural variability of aquatic community requirements and local environmental conditions.

(b) Appropriate uses and criteria for site-specific standards are defined as follows.
  (3) Aquatic life. The establishment of numerical criteria for aquatic life is highly dependent on desired use, sensitivities of usual aquatic communities, and local physical and chemical characteristics. Five subcategories of aquatic life use are established. They include limited, intermediate, high, and exceptional aquatic life and oyster waters. Aquatic life use subcategories designated for segments listed in Appendix A of §307.10 of this title recognize the natural variability of aquatic community requirements and local environmental conditions.
  (5) Additional uses. Other basic uses, such as navigation, agricultural water supply, industrial water supply, seagrass propagation, and wetland water quality functions will be maintained and protected for all water in the state in which these uses can be achieved

Table 4: Aquatic Life Subcategories (Figure: 30 TAC §307.7(b)(3)(A)(i))

Aquatic Life Use Subcate-gory	Dissolved Oxygen, mg/L			Aquatic Life Attributes					
	Freshwater mean/ minimum	Freshwater in Spring mean/ minimum	Saltwater mean/ minimum	Habitat Characteristics	Species Assemblage	Sensitive Species	Diversity	Species Richness	Trophic Structure
Exceptional	6.0/4.0	6.0/5.0	5.0/4.0	Outstanding natural variability	Exceptional or unusual	Abundant	Exceptionally high	Exceptionally high	Balanced
High	5.30/3.0	5.5/4.5	4.0/3.0	Highly diverse	Usual association of regionally expected species	Present	High	High	Balanced to slightly imbalanced
Intermediate	4.0/3.0	5.0/4.0	3.0/2.0	Moderately diverse	Some expected species	Very low in abundance	Moderate	Moderate	Moderately imbalanced
Limited	3.0/2.0	4.0/3.0		Uniform	Most regionally expected species absent	Absent	Low	Low	Severely imbalanced

Utah

SOURCE: Title R317. Environmental Quality, Water Quality, R317-1. Definitions and General Requirements and Rule R317.2 Standards of Quality for Waters of the State, as in effect January 1, 2002:

http://www.rules.state.ut.us/publicat/code/r317/r317-001.htm#T1 , and
http://www.rules.state.ut.us/publicat/code/r317/r317-002.htm#T7

R317-1-1. Definitions

1.20 "Pollution" means such contamination, or other alteration of the physical, chemical, or biological properties of any waters of the state, or such discharge of any liquid, gaseous or solid substance into any waters of the state as will create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

317-2-6. Use Designations

6.3 Class 3 -- Protected for use by aquatic wildlife.

(a) Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

(b) Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.

(c) Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

(d) Class 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

(e) Class 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.

6.5 Class 5 -- The Great Salt Lake. Protected for primary and secondary contact recreation, aquatic wildlife, and mineral extraction.

Vermont

SOURCE: Vermont Water Quality Standards, effective July 2, 2000:
http://www.state.vt.us/wtrboard/docs/adoptedwqs.pdf

Section 1-01B. Applicability and Definitions

5. **Aquatic biota** means all organisms that, as part of their natural life cycle, live in or on waters.

6. **Aquatic habitat** means the physical, chemical, and biological components of the water environment.

10. **Biological integrity** means the ability of an aquatic ecosystem to support and maintain, when consistent with reference conditions, a community of organisms that is not dominated by any particular species or functions (balanced), is fully functional (integrated), and is resilient to change or impact (adaptive), and which has the expected species composition, diversity, and functional organization.

20. **Functional component** of the aquatic ecosystem means a portion of the aquatic biological community identified by its role in the processing of energy within the aquatic ecosystem (e.g., primary producers, predators, detritivores, etc.).

23. **Intolerant aquatic organisms** means those organisms which are particularly sensitive to, and likely to be adversely affected by, the stress of pollution, flow modification or habitat alteration (e.g., mayflies and stoneflies).

29. **Natural condition** means the condition representing chemical, physical, and biological characteristics that occur naturally with only minimal effects from human influences.

39. **Reference condition** means the range of chemical, physical, and biological characteristics of waters minimally affected by human influences. In the context of an evaluation of biological indices, or where necessary to perform other evaluations of water quality, the reference condition establishes attainable chemical, physical, and biological conditions for specific water body types against which the condition

of waters of similar water body type is evaluated.

44. **Taxonomic component of the aquatic ecosystem** means a portion of the biological community identified by a hierarchical classification system for identifying biological organisms that uses physical and biological characteristics (e.g., Insecta: Plecoptera: Perlidae: Agnetina capitata).

45. **Tolerant aquatic organisms** means organisms (e.g., midges and annelids) that, although they may be affected by the stress of pollution, flow modification or habitat alteration, are less sensitive and less likely to be adversely affected than are intolerant aquatic organisms.

Section 3-01C. Numeric Biological Criteria

C. Numeric Biological Indices
   1. In addition to other applicable provisions of these rules and other appropriate methods of evaluation, the Secretary may establish and apply numeric biological indices to determine whether there is full support of aquatic biota and aquatic habitat uses. These numeric biological indices shall be derived from measures of the biological integrity of the reference condition for different water body types. In establishing numeric biological indices, the Secretary shall establish procedures that employ standard sampling and analytical methods to characterize the biological integrity of the appropriate reference condition. Characteristic measures of biological integrity include but are not limited to community level measurement such as: species richness, diversity, relative abundance of tolerant and intolerant species, density, and functional composition.
   2. In addition, the Secretary may determine whether there is full support of aquatic biota and aquatic habitat uses through other appropriate methods of evaluation, including habitat assessments.

Section 3-02 Class A(1) Ecological Waters

B. Water Quality Criteria for Class A(1) Ecological Waters
   3. Aquatic Biota, Wildlife, and Aquatic Habitat - Change from the natural condition limited to minimal impacts from human activity. Measures of biological integrity for aquatic macroinvertebrates and fish assemblages are within the range of the natural condition. Uses related to either the physical, chemical, or biological integrity of the aquatic habitat or the composition or life cycle functions of aquatic biota or wildlife are fully supported. All life cycle functions, including overwintering and reproductive requirements are maintained and protected.

Section 3-03. Class A(2) Public Water Supplies

A. Management Objectives. Waters managed for public water supply purposes to achieve and maintain waters with a uniformly excellent character and a level of water quality that is compatible with the following designated uses:
   1. Aquatic Biota, Wildlife, and Aquatic Habitat - high quality aquatic biota and wildlife sustained by high quality aquatic habitat necessary to support their life-cycle and reproductive requirements.

B. Water Quality Criteria for Class A(2) Public Water Supplies. The following water quality criteria shall be achieved in all Class A(2) public water supplies.
   3. Aquatic Biota, Wildlife and Aquatic Habitat - Biological integrity is maintained, no change from the reference condition that would prevent the full support of aquatic biota, wildlife or aquatic habitat uses. Change from the reference condition for aquatic macroinvertebrates and fish assemblages shall not exceed moderate changes in the relative proportions of taxonomic, functional, tolerant and intolerant components. All expected functional groups are present in a high quality habitat and none shall be eliminated. All life cycle functions, including overwintering and reproductive requirements are maintained and protected. Changes in the aquatic habitat shall not exceed moderate differences from the reference condition consistent with the full support of all aquatic biota and wildlife uses.

Section 3-04. Class B Waters

A. Management Objectives. Class B waters shall be managed to achieve and maintain a level of quality that fully supports the following designated uses:
   1. Aquatic Biota, Wildlife, and Aquatic Habitat - aquatic biota and wildlife sustained by high quality aquatic habitat with additional protection in those waters where these uses are sustainable at a higher level based on Water Management Type designation.

B. Water Quality Criteria for Class B waters. In addition to the criteria specified in §3-01 of these rules, the

following criteria shall be met in all Class B waters:

4. Aquatic Biota, Wildlife and Aquatic Habitat - No change from the reference condition that would prevent the full support of aquatic biota, wildlife, or aquatic habitat uses. Biological integrity is maintained and all expected functional groups are present in a high quality habitat. All life-cycle functions, including overwintering and reproductive requirements are maintained and protected. In addition, the following criteria shall be achieved:
   a. In Water Management Type One waters - change from the reference condition for aquatic macroinvertebrate and fish assemblages shall be limited to minor changes in the relative proportions of taxonomic and functional components; relative proportions of tolerant and intolerant components are within the range of the reference condition. Changes in the aquatic habitat shall be limited to minimal differences from the reference condition consistent with the full support of all aquatic biota and wildlife uses.
   b. In Water Management Type Two waters - change from the reference condition for aquatic macroinvertebrate and fish assemblages shall be limited to moderate changes in the relative proportions of tolerant, intolerant, taxonomic, and functional components. Changes in the aquatic habitat shall be limited to minor differences from the reference condition consistent with the full support of all aquatic biota and wildlife uses.
   c. In Water Management Type Three waters - change from the reference condition for aquatic macroinvertebrate and fish assemblages shall be limited to moderate changes in the relative proportions of tolerant, intolerant, taxonomic, and functional components. Changes in the aquatic habitat shall be limited to moderate differences from the reference condition consistent with the full support of all aquatic biota and wildlife uses. When such habitat changes are a result of hydrological modification or water level fluctuation, compliance may be determined on the basis of aquatic habitat studies.
   d. In all other Class B waters - no change from reference conditions that would have an undue adverse effect on the composition of the aquatic biota, the physical or chemical nature of the substrate or the species composition or propagation of fishes.

Section 3-05 Fish Habitat Designation

To provide for the protection and management of fisheries, the waters of the State are designated in Appendix A as being either a cold or a warm water fish habitat. Where appropriate, such designations may be seasonal.

Virginia

SOURCE: State Water Control Board, Virginia Administrative Code (9 VAC 25-260-5 et seq. Water Quality Standards). Statutory Authority: § 62.1-44.15(3a) of the Code of Virginia. Effective Date: December 10, 1997: http://www.deq.state.va.us/wqs/

PART I
SURFACE WATER STANDARDS WITH GENERAL, STATEWIDE APPLICATION

9 VAC 25-260-10. Designation of uses.

A. All state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish.

9 VAC 25-260-20. General standard.

A. All state waters, including wetlands, shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life.

9 VAC 25-260-370. Classification column.

B. DGIF trout waters. The Department of Game and Inland Fisheries (DGIF) has established a classification system for trout waters based on aesthetics, productivity, resident fish population and stream structure. Classes i through iv rate wild trout habitat; Classes v through vii rate cold water habitat not suitable for wild trout but adequate for year-round hold-over of stocked trout. The DGIF classification system is included in this publication with the board's trout water classes (Class V - Stockable trout waters and Class VI - Natural trout waters) in the class column of the River Basin Section Tables 9 VAC 25-260-390 et seq.

DGIF trout water classifications which are not consistent with board classifications for stockable trout waters or natural trout waters are shown with a double asterisk (**) in the class column of the River Basin Section Tables 9 VAC 25-260-390 et seq. These trout waters have been identified for reevaluation by the DGIF. Those trout waters which have no DGIF classification are shown with a triple asterisk (***). The DGIF classes are described below. Inclusion of these DGIF classes provides additional information about specific streams for permit writers and other interested persons. Trout waters classified as classes i or ii by the DGIF are also recognized in 9 VAC 25-260-110.

DGIF STREAM CLASS DESCRIPTIONS.

Wild natural trout streams.

Class i. Stream of outstanding natural beauty possessing wilderness or at least remote characteristics, an abundance of large deep pools, and excellent fish cover. Substrate is variable with an abundance of coarse gravel and rubble. Stream contains a good population of wild trout or has the potential for such. Would be considered an exceptional wild trout stream.

Class ii. Stream contains a good wild trout population or the potential for one but is lacking in aesthetic quality, productivity, and/or in some structural characteristic. Stream maintains good water quality and temperature, maintains at least a fair summer flow, and adjacent land is not extensively developed. Stream would be considered a good wild trout stream and would represent a major portion of Virginia's wild trout waters.

Class iii. Stream which contains a fair population of wild trout with carrying capacity depressed by natural factors or more commonly man-related land use practices. Land use activities may result in heavy siltation of the stream, destruction of banks and fish cover, water quality degradation, increased water temperature, etc. Most streams would be considered to be in the active state of degradation or recovery from degradation. Alteration in land use practices would generally improve carrying capacity of the stream.

Class iv. Stream which contains an adequately reproducing wild trout population but has severely reduced summer flow characteristics. Fish are trapped in isolated pools where they are highly susceptible to predators and fishermen. Such streams could quickly be over-exploited and, therefore, provide difficult management problems.

Stockable trout streams.

Class v. Stream does not contain an adequately reproducing wild trout population nor does it have the potential for such. However, water quality is adequate, water temperature is good, and invertebrate productivity is exceptional. Pools are abundant with good size and depth and fish cover is excellent. Stream would be good for stocked trout but may offer more potential for a fingerling stocking program.

Class vi. Stream does not contain a significant number of trout nor a significant population of warmwater gamefish. Water quality is adequate and water temperature good for summer carryover of stocked trout. Summer flow remains fair and adjacent land is not extensively developed. All streams in this class would be considered good trout stocking water.

Class vii. Stream does not contain a significant number of trout nor a significant population of warmwater gamefish. Water quality and temperature are adequate for trout survival but productivity is marginal as are structural characteristics. Streams in this class could be included in a stocking program but they would be considered marginal and generally would not be recommended for stocking.

Class viii. Stream does not contain a significant number of trout nor a significant population of warmwater gamefish. Water quality and temperature are adequate for trout but summer flows are very poor (less than 30% of channel). Streams in this class can provide good trout fishing during spring

and early summer but would not be recommended for summer or fall stocking.

Other. Remaining streams would be considered unsuitable for any type of trout fishery. Streams would be considered unsuitable under any of the following conditions:
(a) summer temperatures unsuitable for trout survival;
(b) stream contains a significant population of warmwater gamefish;
(c) insufficient flow; or
(d) intolerable water quality.

Washington

SOURCE: Chapter 173-201A Washington Administrative Code. Water Quality Standards for Surface Waters of the State of Washington, November 18, 1997: http://www.ecy.wa.gov/pubs/wac173201a.pdf

WAC 173-201A-010 Introduction.

(1) The purpose of this chapter is to establish water quality standards for surface waters of the state of Washington consistent with public health and public enjoyment thereof, and the propagation and protection of fish, shellfish, and wildlife, pursuant to the provisions of chapter 90.48 RCW [Revised Code of Washington] and the policies and purposes thereof.

WAC 173-201A-020 Definitions.

"Biological assessment" is an evaluation of the biological condition of a water body using surveys of aquatic community structure and function and other direct measurements of resident biota in surface waters.

"Damage to the ecosystem" means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the department reasonably concludes may interfere in the health or survival success or natural structure of such populations. This stress may be due to, but is not limited to, alteration in habitat or changes in water temperature, chemistry, or turbidity, and shall consider the potential build up of discharge constituents or temporal increases in habitat alteration which may create such stress in the long term.

"Ecoregions" are defined using EPA's *Ecoregions of the Pacific Northwest* Document No. 600/3-86/033 July 1986 by Omernik and Gallant.

"Wildlife habitat" means waters of the state used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

WAC 173-201A-030 General water use and criteria classes.

The following criteria shall apply to the various classes of surface waters in the state of Washington:

Class AA (extraordinary), Class A (excellent), and Class B (good). Characteristic uses shall include, but not be limited to, the following:
(iii) Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting. Other fish migration, rearing, spawning, and harvesting. Clam, oyster, and mussel rearing, spawning, and harvesting. Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing, spawning, and harvesting.
(iv) Wildlife habitat.

Class C (fair). Characteristic uses shall include, but not be limited to, the following:
(ii) Fish (salmonid and other fish migration).

Lake class. Characteristic uses shall include, but not be limited to, the following:
(iii) Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting. Other fish migration, rearing, spawning, and harvesting. Clam and mussel rearing, spawning, and harvesting. Crayfish rearing, spawning, and harvesting.
(iv) Wildlife habitat.

West Virginia

SOURCE: Title 46, West Virginia Secretary of State, Code of State Rules (CSR), Legislative Rule, Environmental Quality Board, Series 1, Requirements Governing Water Quality Standards, effective May 17, 2001: http://www.state.wv.us/csr/verify.asp?TitleSeries=46-01

§46-1-3. Conditions Not Allowable In State Waters.

3.2.i. Any other condition, including radiological exposure, which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed.

§46-1-6. Water Use Categories.

6.3. Category B – Propagation and maintenance of fish and other aquatic life. -- This category includes:

6.3.a. Category B1 -- Warm water fishery streams. -- Streams or stream segments which contain populations composed of all warm water aquatic life.

6.3.b. Category B2 -- Trout Waters. -- As defined in Section 2.19 (See Appendix A for a representative list.)

6.3.c. Category B4 -- Wetlands. -- As defined in section 2.22; certain numeric stream criteria may not be appropriate for application to wetlands (see Appendix E).

6.5. Category D. -- Agriculture and wildlife uses.

6.5.c. Category D3 -- Wildlife. -- This category includes all stream segments and wetlands used by wildlife.

Wisconsin

Source: Wisconsin Administrative Code, Department of Natural Resources, Chapter NR 102, Water Quality Standards for Wisconsin Surface Waters, February 1998: http://www.legis.state.wi.us/rsb/code/nr/nr102.pdf

NR 102.04 Categories of standards.

(3) FISH AND OTHER AQUATIC LIFE USES. The department shall classify all surface waters into one of the fish and other aquatic life subcategories described in this subsection. Only those use subcategories identified in pars. (a) to (c) shall be considered suitable for the protection and propagation of a balanced fish and other aquatic life community as provided in the federal water pollution control act amendments of 1972, P.L. 92–500; 33 USC 1251 et seq.

(a) *Cold water communities*. This subcategory includes surface waters capable of supporting a community of cold water fish and other aquatic life, or serving as a spawning area for cold water fish species. This subcategory includes, but is not restricted to, surface waters identified as trout water by the department of natural resources (Wisconsin Trout Streams, publication 6–3600 (80)).

(b) *Warm water sport fish communities*. This subcategory includes surface waters capable of supporting a community of warm water sport fish or serving as a spawning area for warm water sport fish.

(c) *Warm water forage fish communities.* This subcategory includes surface waters capable of supporting an abundant diverse community of forage fish and other aquatic life.

(d) *Limited forage fish communities*. (Intermediate surface waters). This subcategory includes surface waters of limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of forage fish and other aquatic life.

(e) *Limited aquatic life*. (Marginal surface waters). This sub-category includes surface waters of severely limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of aquatic life.

(7) STANDARDS FOR WILDLIFE. All surface waters shall be classified for wildlife uses and meet the wildlife criteria specified in or developed pursuant to NR 105.07.

Wyoming

SOURCE: Wyoming Rules and Regulations, Water Quality Rules and Regulations: Chapter 1, Quality Standards for Wyoming Surface Waters Sections 2, 3, and 4, March 7, 2000:
http://soswy.state.wy.us/RULES/3925.pdf

Section 2. Definitions. The following definitions supplement those definitions contained in section 35-11-103 of the Wyoming Environmental Quality Act.

(e) "Cold Water Game Fish " means Grayling (Thymallus arcticus), Northern Pike (Esox lucius), Salmon (Oncorhynchus spp.), Sauger (Stizostedion canadense), Tiger muskie (Esox Masquinongy), Trout (Salmo, Oncorhynchus, and Salvelinus spp.), Walleye (Stizostedion vitreum), and Whitefish (Prospium williamsoni).

(p) "Game fish" means Bass (Micropterus spp.), Catfish (Ictalurus punctatus), Crappie (Pomoxis spp.), Grayling (Thymallus arcticus), Ling (Lota lota), Northern Pike (Esox lucius), Perch (Perca flavescens), Salmon (Oncorhynchus spp.), Sauger (Stizostedion canadense), Sunfish (Lepomis spp.), Tiger Muskie (Esox Masquinongy), Trout (Salmo, Oncorhynchus, and Salvelinus spp.), Walleye (Stizostedion vitreum), White Bass (Morone chrysops), and Whitefish (Prospium williamsoni).

(w) "Natural" means that condition which would exist without the measurable effects or measurable influence of man's activities.

(x) "Natural biotic community" means the population structures which were historically or normally present under a given set of chemical and physical conditions or which would potentially exist had not the habitat been degraded.

(y) "Natural water quality" means that quality of water which would exist without the measurable effects or measurable influence of man's activities.

(ll) "Undesirable aquatic life" means organisms generally associated with degraded or eutrophic conditions. These may include the following organisms where they have replaced members of the natural biotic community: nongame fish, bluegreen algae, certain diatoms, fungi, tubificid worms, and certain syrphid flies.

(mm) "Warm water game fish" means Bass (Micropterus spp.), Catfish (Ictalurus punctatus), Crappie (Pomoxis spp.), Ling (Lota lota), Perch (Perca flavescens), Sunfish (Lepomis spp.), and White Bass (Morone Chrysops).

Section 3. Water Uses.
(b) Protection and propagation of fish and wildlife;...and to achieve the goal of the federal act, which is to achieve, wherever attainable, surface water quality which provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

Section 4. Surface Water Classes and Uses. There are four classes of surface water in Wyoming:
(a) Class 1 - Those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed. Nonpoint sources of pollution shall be controlled through implementation of appropriate best management practices. In designating Class 1 waters, the Environmental Quality Council shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people.
(b) Class 2 - Those surface waters, other than those classified as Class 1, which are determined to:
  (i) Be presently supporting game fish; or
  (ii) Have the hydrologic and natural water quality potential to support game fish; or
  (iii) Include nursery areas or food sources for game fish.

(c) Class 3 - Those surface waters, other than those classified as Class 1, which are determined to:
  (i) Be presently supporting nongame fish only; or
  (ii) Have the hydrologic and natural water quality potential to support nongame fish only; or
  (iii) Include nursery areas or food sources for nongame fish only.
(d) Class 4 - Those surface waters, other than those classified as Class 1, which are determined to not have the hydrologic or natural water quality potential to support fish and include all intermittent and ephemeral streams. Class 4 waters shall receive protection for agriculture uses and wildlife watering.

TERRITORIES

American Samoa

SOURCE: American Samoa Water Quality Standards (1999 Revision provided by ASEPA), Sections 24.0205 and 24.0206:

§24.0205 Water Classifications-Protected and Prohibited Uses

(1) Class 1 Fresh Surface Waters
  (A) Class 1 waters are to remain in as near their natural state as possible with a minimum of pollution from any human activity. Protected uses of these waters are: potable water supplies, support and propagation indigenous aquatic and terrestrial life and compatible recreation and aesthetic enjoyment.
  (B) Prohibited uses and activities include, but are not limited to:
    (i) Point source discharges of pollutants
    (ii) Dredging and filling activities
    (iii) Bathing, including washing clothes and dishes
    (iv) Animal pens over or within 100 feet of the water body
    (v) Siting of septic tanks or cesspools within 200 feet of the water body
    (vi) Land disturbing (e.g., grading, tillage) activities within 100 feet of the water body
    (vii) Wood cutting or clearing within 100 feet of the water body

(2) Class 2 Fresh Surface Waters
  (A) Class 2 waters shall be protected for the support and propagation of indigenous aquatic life, recreation in and on the water, and aesthetic enjoyment.
  (B) Prohibited uses and activities include, but are not limited to:
    (i) No zones of mixing will be granted
    (ii) Dredging or filling activities, except as approved by EQC
    (iii) Animal pens over or immediately adjacent to the water body

§24.0206 Standards of Water Quality

(i) There shall be no changes in basin geometry or freshwater inflow that will alter current patterns in such a way as to adversely affect existing biological populations or sediment distribution. To protect estuarine organisms, no change in channels, basin geometry, or freshwater influx shall be made which would cause permanent changes in existing isohaline patterns of more than 10 percent.

Commonwealth of Northern Mariana Islands

Source: http://www.epa.gov/ost/standards/wqslibrary/ and http://www.deq.gov.mp/

PART 5 CLASSIFICATION OF WATER USES

5.1 Marine Waters

(a) CLASS AA - It is the objective of this class that these waters remain in their natural pristine state as

nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-related source or actions. To the extent practicable, the wilderness character of such areas shall be protected. No zones of mixing shall be permitted. The uses to be protected in this class of waters are the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, oceanographic research, and aesthetic enjoyment and compatible recreation inclusive of whole body contact and related activities. / The classification of any water area as Class AA shall not preclude other uses of such waters compatible with these objectives and in conformance with the criteria applicable to them.

(b) CLASS A - It is the objective of this class of waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be allowed as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters of a limited body contact nature. Such waters shall be kept clean of solid waste, oil and grease, and shall not act as receiving waters for any effluent which has not received the best degree of treatment of control practicable under existing technology and economic conditions and compatible with standards established for this class. A zone of mixing is [approvable] in such waters.

5.2 Fresh Surface Waters

(a) Class 1 - It is the objective of this class that these waters remain in their natural state as nearly as possible with an absolute minimum Of pollution from any human-caused source. To the extent possible, the wilderness character of such areas shall be protected. Wastewater discharges and zone of mixing into these waters are prohibited. The uses to be protected in this class of water are for domestic water supplies, food processing, the support and propagation of aquatic life, compatible recreation and aesthetic enjoyment including water contact recreation.

(b) Class 2 - It is the objective of this class of waters that their use for recreational purposes, propagation of fish and other aquatic life, and agricultural and industrial water supply not be limited in any way. The uses to be protected in this class of waters are all uses compatible with the protection and propagation of fish and other aquatic life, and with recreation in and on these waters. Compatible recreation may include limited body contact activities. Such waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control practical under technological and economic conditions and compatible with the standards established for this class. A zone of mixing is permissible in these waters.

5.3 Protection of wetlands

Wetlands are waters of the State and are subject to the provisions of this rule. Point or nonpoint sources of pollution shall not cause destruction or impairment of wetlands. The general application of the Water Quality Standards shall apply to all wetlands unless replaced by site specific standards for wetlands based on their function are adopted by the Commonwealth and approved by EPA.

7.6 Salinity

Marine Waters (applicable to Class A, Class AA): No alterations of the marine environment shall occur that would: (1) alter the salinity of marine or estuarine waters more than 10% of the ambient conditions, or (2) which would otherwise adversely affect the sedimentary patterns and indigenous biota, except when due to natural causes.

7.10 Oil and Petroleum Products

The concentration of oil or petroleum products shall not:

(b) Cause tainting of fish or other aquatic life, be injurious to the indigenous biota or cause objectionable taste in drinking water.

7.12 General Considerations

(d) The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ substantially from those for the same waters in areas unaffected by controllable water quality factors. Also, controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life.

*This language has not been reviewed for accuracy by state/tribal agency.

SOURCE: Section II, Guam STATEMENT OF POLICY, amended 1986:
http://www.epa.gov/ost/standards/wqslibrary/

It shall be the public policy of the Territory of Guam to:

1. conserve, protect, maintain, and improve the quality of the Guam's waters for (drinking and food processing) human consumption, for the growth and propagation of aquatic life, for marine research and for the preservation of coral reefs and wilderness areas, and for domestic, agricultural, commercial, industrial, recreational and other legitimate uses;
4. maintain and improve the chemical, physical, and biological integrity of wetlands water quality as necessary to meet the Clean Water Act Section 101(a), and to protect wetlands...

SECTION I: CATEGORIES OF WATERS

A. **MARINE WATERS.** This category includes all coastal waters off-shore from the mean high water mark, including estuarine waters, lagoons and bays, brackish areas, wetlands and other special aquatic sites, and other inland Waters that are subject to ebb and flow of the tides. Refer to Water Classification Map.

CATEGORY M-1 EXCELLENT: Waters in this category must be of high enough quality to ensure preservation and protection of marine life, including corals and reef dwelling organisms, fish and related fisheries resources, and enable the pursuit of marine scientific research as well as aesthetic enjoyment. This category of water shall remain substantially free from pollution attributed to domestic, commercial and industrial discharges, shipping and boating, or agriculture, construction and other activities which can reduce the waters' quality. Furthermore, there shall be no zones of mixing within this category water.

CATEGORY M-2 GOOD: Water in this category must be of sufficient quality to allow for the propagation and survival of marine organisms, particularly shellfish, corals and other reef related resources. Other important and intended uses include mariculture activities, aesthetic enjoyment and compatible recreation inclusive of whole body contact and related activities.

CATEGORY M-3 FAIR: Water in this category is intended for general, commercial and industrial use. Specific intended uses include the following: shipping, boating and berthing, industrial cooling water, marinas, while allowing for protection of aquatic life, aesthetic enjoyment and compatible recreation with limited body contact.

B. **MIXING ZONES IN RECEIVING WATERS**. ...The following criteria apply to all mixing zones:
   3. Biologically important areas, including spawning and nursery areas, shall be protected.

CHAPTER IV DEFINITIONS

BIOTA: The animal, plant and microbial life of a region.

COMMUNITY: An association of living organisms in a given area or region in which the various species are more or less interdependent upon each other.

HABITAT: The environment occupied by individuals of a particular species, population or community.

SPECIAL AQUATIC SITES: Sites possessing special ecological characteristics and values including wetlands, wildlife sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, riffle and pool complexes.

WETLANDS: Means areas of land where the water table is at, near or above the land surface long enough each year to result in the formation of characteristically wet (hydric) soil types, and support the growth of water dependent (hydrophytic) vegetation. Wetlands include, but are not limited to, marshes, swamps, mangroves, natural ponds, surface springs, estuaries, bogs, and
other such low-lying or similar areas. Inland wetlands will include all wetlands meeting the following conditions.

1) Wetlands greater than one hectare in size with less than 0.5% (ocean derived) salinity; and
2) Palustrine, Riverine and Lacustrine wetlands with greater than 30% wetland vegetation cover.

WETLAND FUNCTIONS: The beneficial uses of wetlands which are protected by these Water Quality Standards including but not limited to groundwater recharge/discharge, flood water retention, sediment stabilization, nutrient removal/transformation, wildlife diversity/ abundance,
aquatic diversity/abundance, and recreation.

Puerto Rico

SOURCE: Commonwealth of Puerto Rico, Office of the Governor, Environmental Quality Board, Puerto Rico Water Quality Standards, amended November 1987: http://www.epa.gov/ost/standards/wqslibrary/

Article I. Definitions

Benthic Species. Organisms that inhabit on, over, or in the bottom of the water body.;live adhered to the bottom or crawl over the bottom.

Biota. All living organisms.

Desirable Species. Species indigenous to the area or introduced to the area because of ecological or commercial value.

Ecological Community. Group of organisms dominated by one species or a specific group of species. The ecological community derives its name from that of the dominant species, such as coral reefs and mangroves.

Ecological Value. Refers to the existing interrelations between water body, fauna and flora that result in the continuity, stability and permanence of the ecological community.

Pelagic Species. Organisms that have the ability of self locomotion and can overcome the currents. These organisms can be found anywhere in the water column, near the surface, the bottom or at any point between the surface and the bottom.

Planktonic Species. Marine organisms that mainly inhabit the surface of the receiving body of water. Their main characteristic is that they cannot overcome the currents even if they have self locomotion.

Propagation and Preservation of Desirable Species. This refers to the reproduction and continuance of flora and fauna associated with water bodies and which have ecologic importance and/or commercial value, whether individually or as part of an ecological community.

Wetlands. Areas inundated or saturated by coastal, surface cr ground water at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions.

ARTICLE 2. CLASSIFICATION OF THE WATERS OF PUERTO RICO ACCORDING TO THE DESIGNATED USES TO BE PROTECTED

3.2 Use Classifications and Water Quality Standards for Specific Classifications:

3.2.1 Class SA:

(A) Usages and Description: Coastal waters and estuarine waters of high quality and/or exceptional ecological or recreational value whose existing characteristics shall not be altered, except by natural causes, in order to preserve the existing natural phenomena.

3.2.2 Class SB:

(A) Usages and Description. Coastal waters and estuarine waters for use in primary and secondary contact recreation, and for propagation and preservation of desirable species.

3.2.3 Class SC:

(A) Usages and Description: Coastal waters intended ...for use in propagation and preservation

of desirable species.

3.2.4 Class SD:

(A) Usages and Description: Surface waters intended for ... propagation and preservation of desirable species as well as primary and secondary contact recreation...

3.2.5 Class SE:

(A) Usages and Description: Surface waters and wetlands of exceptional ecological value, whose existing characteristics should not be altered in order to preserve the existing natural phenomena.

U.S. Virgin Islands

SOURCE: T.12 Subchapter 186. Water Quality Standards for Coastal Waters of the Virgin Islands Ch. 7 WATER POLLUTION CONTROL §186-2 - 186.4: http://www.epa.gov/ost/standards/wqslibrary

§ 186-2. Class A

(a) Best usage of waters: Preservation of natural phenomena requiring special conditions, such as the Natural Barrier Reef at Buck Island, St. Croix and the Under Water Trail at Trunk Bay, St. John.

(b) Quality criteria: Existing natural conditions shall not be changed.

§ 186-3. Class B

(a) Best usage of waters: For propagation of desirable species of marine life...

§ 186-4. Class C

(a) Best usage of waters: For the propagation of desirable species of marine life...

TRIBES

Confederated Tribes of the Colville Reservation

SOURCE: Source: 40 CFR 131.35, July 1, 2000 edition:
http://www.epa.gov/ost/standards/wqslibrary/tribes/131.35.pdf

§ 131.35

(f) General water use and criteria classes. The following criteria shall apply to the various classes of surface waters on the Colville Indian Reservation:

(1) *Class I (Extraordinary)—(i) Designated uses.* The designated uses include, but are not limited to, the following:

(C) Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting; other fish migration, rearing, spawning, and harvesting.

(D) Wildlife habitat.

(2) *Class II (Excellent)*—(i) *Designated uses.* The designated uses include but are not limited to, the following:

(C) Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting; other fish migration, rearing, spawning, and harvesting; crayfish rearing, spawning, and harvesting.

(D) Wildlife habitat.

(3) *Class III (Good)*—(i) *Designated uses.* The designated uses include but are not limited to, the following:

(C) Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting; other fish migration, rearing, spawning, and harvesting; crayfish rearing, spawning, and harvesting.

(D) Wildlife habitat.

(4) *Class IV (Fair)*—(i) *Designated uses.* The designated uses include but are not limited to, the following:
(C) Fish (salmonid and other fish migration).

Nez Perce Tribe

WQS under development. Currently collecting chemical and physical habitat data to eventually establish WQS for the reservation area. No website available.

Oneida Nation of Wisconsin

(WQS were federally approved in 1996 and then rescinded after a lawsuit.)
SOURCE: Oneida Nation Water Quality Standards, hard copy provided by contact

Article VII. Narrative Criteria

7-1. Narrative criteria shall be used to guide water management decisions and activities that affect the Waters of the Reservation, and to protect and enhance water quality. The following narrative criteria shall apply to all Waters of the Reservations provided, however, where more stringent criteria exist, the stricter standards shall supersede.

7-2. All Waters of the Reservation shall be free from:

a. pollutants in quantities that, either alone or as a result of interaction with other pollutants, cause any designated use to become impaired.

b. pollutants in quantities that produce or contribute to the production of nuisance aquatic life.

c. pollutants in quantities that produce objectionable color, odor, taste or turbidity.

d. hazardous substances, toxic corrosive, nonconventional materials concentrations, or other deleterious substances, chemicals, and materials, which alone or in combination with other substances or in combination with other components of discharges, or their breakdown products, are acutely or chronically toxic, carcinogenic, teratogenic, and injure, or bioaccumulate, biomagnify, bioconcentrate, or produce adverse physiological responses in human beings and/or fish and aquatic life, or which interfere directly or indirectly with designated, existing, or other uses.

e. exotic nuisance species, e.g. purple loosestrife, zebra mussels, etc.

f. toxic pollutants in quantities that result bioaccumulation in aquatic organisms leading to toxicity to consumers of the aquatic organisms.

g. excess nutrients that may cause a condition harmful to human health, decrease fish habitat, cause nuisance aquatic growths, or that in any way impair designated uses. Nitrogen and phosphorous concentrations shall not exceed the levels stated in Article XIII of this document.

h. microorganisms at levels that make recreation in and on Reservation waters unsafe.

i. floating debris, oil, scum and other floating materials as a result of human activity in amounts sufficient to be unsightly, cause degradation or impair designated uses.

j. materials entering the waters as a result of human activity producing color, odor, taste or other conditions in amounts sufficient to be unsightly, cause degradation or in any way impair designated uses.

k. substances other than from natural causes that may settle to form objectionable deposits or adversely impact designated uses.

l. contaminants, from other than natural causes, that may settle or remain suspended that have a deleterious effect on the aquatic life or that will significantly alter the physical or chemical properties of the water body or that in any way impairs designated uses.

7-3. All wetlands shall be protected to maintain and restore their natural physical, biological, and chemical characteristics, including substrate, vegetative and hydrological conditions necessary to support natural amounts of native vegetation, maintain natural hydrodynamics and maintain natural water temperature variations that are necessary to protect and support all existing and designated uses.

7-4. All naturally occuring biological communities and the habitat needed to support them shall be maintained and protected in all waters and wetlands of the Reservation at all times.

7-5. Concentrations of radioactive materials shall not exceed concentrations caused by local naturally occuring materials.

7-6. All Waters of the Reservation shall be free from unauthorized discharges at all places at all times.

7-7. Any activity that allows storm discharges or base flow conditions to significantly degrade stream morphology or result in a waterway's inability to maintain existing aquatic life shall be prohibited. Cumulative impacts of any such activity shall be considered.

7-8. Waters contained in intermittent and ephemeral streams shall meet all water quality criteria applicable to any perennial streams to which they are tributaries.

7-9. All criteria should be met at all times and all locations, including low flow rates. However, allowance may be made for mixing, on a case by case basis, where compliance with the chronic criteria is not technically feasible. In such cases mixing zones shall be established consistent with 40 C. F. R. Pt. 132, Appendix F, Procedure 3. In no case will mixing be permitted in biologically or recreationally sensitive areas. In no case may the acute criteria be exceeded.

7-10. Natural native biological/ecological communities associated with Waters of the Reservation and their biotic and abiotic components and relationships shall be protected.

7-11. Waters of the Reservation shall not be degraded below their present water quality nor shall new or increased discharges be permitted unless it is determined by the Environmental Department that the accompanying water quality degradation from such discharges will provide unique benefits in accordance with Section 6-7 and Section 6-8. All existing and designated uses shall be protected at all times.

7-12. Any activities that degrade the aesthetic quality, stability and/or ecological integrity of the Waters of the Reservation shall be prohibited unless authorized in a manner consistent with the water quality standards contained herein.

7-13. The discharge of toxicants into the Waters of Reservations that are known or found to be synergistic with other pollutants shall be addresses on a case by case basis.

7-14. For substances where numeric criteria have not yet been adopted by the Oneida Nation, the numeric criteria and methodologies in 40 C. F. R. Pt. 132, Appendices A-D shall be used and are incorporated into these standards by reference.

Article IX. Designated Uses

9-1. All of the following categories of designated uses shall apply to all Waters of the reservation except where noted.

9-2. *Public Water Supply*. Waters specifically designated as suitable or intended to become suitable for providing an adequate supply of drinking water for the continuation of the health, safety and welfare of the Nation's members and residents of the Oneida Reservation.

9-3. *Wildlife.* All surface waters capable of providing a water supply and vegetative habitat for the support and propagation of all wildlife located within the exterior boundaries of the Oneida Nation Reservation.

9-4. *Aquatic Life.* Waters of the Reservation shall be categorized as one the following:

1. *Cold Water Ecosystems*: Waters of the Reservation where water temperature, habitat and other characteristics are suitable or intended to be suitable for the support and propagation of cold water fish and other aquatic life, or serving as a spawning or nursery area for cold water fish species. Examples of cold water fish include brook trout and rainbow trout. Trout Creek, Lancaster Brook and associated tributaries are hereby designated as cold water ecosystems.
2. *Warm Water Ecosystems:* Waters of the Reservation where water temperature, habitat and other characteristics are suitable or intended to be suitable for support and propagation of warm water fish and other aquatic life, or serving as a spawning or nursery area for warm water fish species. Examples of warm water fish species include large mouth bass and bluegills. All Waters of the Reservation are hereby designated as warm water ecosystems except those mentioned in Section 9-4(a).

9-5. *Subsistence Fishing.* Water of the Reservation where spearing, netting or bow fishing is allowed as stated in the Oneida Conservation Hunting and Fishing Law.

9-6. *Cultural.* Waters that are suitable or intended to be suitable for traditional, cultural, historic and modern ceremonial uses which uses which may include, but are not limited to the harvest and use of medical plants and wildlife associated with aquatic, wetland and riparian habitats; cultural educational uses including but not limited to ethnohydrological learning experiences that are passed from one generation to the next regarding the harvest of plants, fish, and animals; subsistence fishing; and activities that may require the protection of sensitive and valuable aquatic plant and wildlife, and aquatic, wetland and riparian habitat.

9-7. Recreation.

1. *Primary Contact Recreational:* Waters that are suitable for activities involving prolonged human contact where the risk of ingesting small quantities of water is likely; examples of this type of activity include, but are not limited to, swimming, tubing, rafting, skin diving, etc. The Norbert Hill Pond is hereby designated as a primary contact recreational area.
2. *Secondary Contact Recreational:* Waters that are suitable for activities in which human contact with the water may, but need not occur and in which the probability of ingesting raw water is unlikely. Examples of this type of activity include, but are not limited to, fishing, wading, boating, etc. All Waters of the Reservation are hereby designated as secondary contact recreational areas except for those mentioned in Section 9-5(a).

9-8. *Agricultural.* Waters that are suitable for crop irrigation and livestock ingestion.

9-9. *Navigational.* Waters that are suitable for navigation in and on the water.

9-10. *Industrial.* Waters that are suitable for manufacturing and/or production enterprises.

Passamaquoddy Tribe, Pleasant Point Reservation

[WQS currently awaiting approval by EPA Region 9]

Pyramid Lake Paiute Tribe

[WQS currently awaiting approval by EPA Region 9]

INTERSTATE COMMISSIONS

Delaware River Basin Commission

SOURCE: Delaware River Basin Commission West Trenton, New Jersey. Administrative Manual — Part III, Water Quality Regulations, Revised to Include Amendments Through October 23, 1996, Article 3 Water Quality Standards for the Delaware River Basin [Comprehensive Plan, Section X]:
http://www.state.nj.us/drbc/regs/wq-regs.pdf

3.10 BASINWIDE SURFACE WATER QUALITY STANDARDS

3.10.2 Water Uses

B. Uses to be Protected. The quality of Basin waters, except intermittent streams, shall be maintained in a safe and satisfactory condition of the following uses:

2. wildlife, fish and other aquatic life;

3.10.3 Stream Quality Objectives

A. Antidegradation of Waters

2. Special Protection Waters. It is the policy of the Commission that there be no measurable change in existing water quality except towards natural conditions in waters considered by the Commission to have exceptionally high scenic, recreational, ecological, and/or water supply values. Waters with exceptional values could be classified by the Commission as Outstanding Basin Waters or Significant Resource Waters.

In determining waters suitable for classification as Special Protection Waters, the Commission will consider nomination petitions from local, state and federal agencies and governing bodies, and the public for waters potentially meeting the definition of Outstanding Basin Waters and Significant Resource Waters as described in 3.10.3A.2.a.

The following policies shall apply to waters classified by the Commission as Outstanding Basin Waters or Significant Resource Waters and their drainage areas:

a. Definitions

1) "Outstanding Basin Waters" are interstate and contiguous intrastate waters that are contained within the established boundaries of national parks; national wild, scenic and recreational rivers systems; and/or national wildlife refuges that are classified by the Commission under Subsection 2.g.1). hereof as having exceptionally high scenic, recreational, and ecological values that require special protection.

2) "Significant Resource Waters" are interstate waters classified by the Commission under Subsection 2.g.2). hereof as having exceptionally high scenic, recreational, ecological, and/or water supply uses that require special protection.

3) "Existing Water Quality" is defined as the actual concentration of a water constituent at an in-stream site or sites, as determined through field measurements and laboratory analysis of data collected over a time period determined by the Commission to adequately reflect the natural range of the hydraulic and climatologic factors which affect water quality. Existing water quality shall be described in terms of (a) an annual or seasonal mean of the available water quality data, (b) two-tailed upper and lower 95 percent confidence limits around the mean, and (c) the 10th and 90th percentiles of the data set from which the mean was calculated. Where available data are insufficient to determine existing water quality, existing water quality may be estimated from data

obtained from sites within the same ecoregion or from best scientific judgment.

4) "Measurable Change" is defined as an actual or estimated change in a mean (annual or seasonal) in-stream pollutant concentration that is outside the range of the two-tailed upper and lower 95 percent confidence limits that define existing water quality. In the absence of adequate available data, background concentrations will be assumed to be zero and "measurable change" will be based on in-stream concentrations greater than the detection limit for each parameter, based on the lowest limit of the most sensitive technique specified in 40 CFR Part 136.

Excerpted from Table 1: Definition of Existing Water Quality in the Delaware River Between Hancock, NY and the Delaware Water Gap:

Part A: Upper Delaware Scenic & Recreational River

Parameter	Mean	95 Percent Confidence Limits of Mean	10^{th} and 90^{th} Percentiles	Additional
....	....	....	...	....
Biocriteria: Shannon-Weiner	3.6	3.4 to 3.8	2.7 and 4.3	May - Sept; reachwide
Biocriteria: Equitability	0.8	0.7 to 0.9	0.5 and 1.1	May - Sept; reachwide
Biocriteria:: EPT	15.5	13.8 to 17.2	8.0 and 24.0	May - Sept; reachwide

Part B: Delaware River from Millrift through the Delaware Water Gap Including the Middle Delaware Scenic and Recreational River

Parameter	Mean	95 Percent Confidence Limits of Mean	10^{th} and 90^{th} Percentiles	Additional
....	....	....	...	....
Biocriteria: Shannon-Weiner	3.6	3.4 to 3.7	3.2 and4.1	May - Sept; reachwide
Biocriteria: Equitability	0.8	0.7 to 0.9	0.5 and 1.1	May - Sept; reachwide
Biocriteria: EPT	13.9	12.8 to 15.1	8.0 and 20.0	May - Sept; reachwide

Ohio River Valley Water Sanitation Commission

SOURCE: Ohio River Valley Water Sanitation Commission Pollution Control Standards for discharges to the Ohio River, 2000 Revision: http://www.orsanco.org/watqual/standards/PollutionControl.pdf and http://www.orsanco.org/

II. Definitions

B. "Biological integrity" means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional

organization comparable to those best attainable given ecoregional attributes and the modified habitat types of the river.

H. “Early Life Stages” of fish means the pre-hatch embryonic period, the post-hatch free embryo or yolk-sac fry, and the larval period, during which the organism feeds. Juvenile fish, which are anatomically rather similar to adults, are not considered an early life stage.

R. “Representative Aquatic Species” means those species of aquatic life whose protection and propagation will assure the sustained presence of a balanced indigenous community. Such species are representative in the sense that maintenance of suitable water quality conditions will assure the overall protection and sustain propagation of the balanced, indigenous community.

IV. Water Quality Criteria

B. Aquatic Life Protection. To provide protection of warm water aquatic life habitats, the following criteria shall be met outside the mixing zone:

1. BIOLOGICAL: The biological integrity of the Ohio River shall be protected and preserved.